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Transport and the New Government

THE appointment in the new Government of a Secretary of State for the Co-ordination of Transport, Fuel & Power, Lord Leathers, with a seat in the Cabinet, is recognition of the importance of transport in the national economy. It is the first occasion since Sir Eric Geddes, the first holder of the office, that the Minister of Transport has had a seat in the Cabinet. Representation of transport in the Cabinet is long overdue and the new appointment should ensure that basic problems, affecting all industry, will receive consideration at the highest level. Lord Leathers, whose appointment is the more welcome in the light of his distinguished previous service as Minister of War Transport in 1941-45, and his high reputation as an administrator, is to be responsible for oversight of the departments concerned and with matters of policy affecting the industries which come under those Ministries. Each of the latter has its own junior Minister, as before. The new Ministers are faced with a formidable task. Before the Government can address itself to the implementation of the transport policy outlined in the Conservative Party election manifesto—which, as we pointed out at the time, dealt only in general terms with the reorganisation of nationalised transport in groups of workable size and with the denationalisation of road haulage—it must solve the immediate problems arising this winter, particularly on the railways. The problem of winter traffic congestion already has been dealt with on the level of the British Transport Commission and the Executives concerned, though the new degree of co-ordination between the railways, the mines, and industry afforded by Lord Leathers' appointment should help

matters. More formidable, because less transient, and of some strategic importance, are the problems of capital investment in the railways, and of railway manpower. The former is largely one for the Chancellor of the Exchequer, though much could be done by a departmental Minister to establish the vital importance of adequate maintenance and development of a railway system long deprived of both. The manpower problem also is partly fiscal, in that it concerns wages, and partly linked with that of conscription for railwaymen. Finally, there is the question of the financial position of the B.T.C.; but this, as it concerns the whole future of nationalised transport, is one of the more controversial questions which the Government must decide.

Mr. Alfred Barnes

THE change of Government ends six-and-a-quarter years' tenure of office by Mr. Alfred Barnes as Minister of Transport. He succeeded Lord Leathers, on the formation of the Labour administration in July, 1945, when the title was Minister of War Transport, before its reversion to its old name in March, 1946, and again in the recent Labour Government from March, 1950. Since the Ministry of Transport was formed in 1919, no Minister has been at its head for so long. The period has been one of the most exacting for any holder of the office, with transport beset with serious difficulties and subject to sustained public attention and criticism. One of the Labour Government's first steps was the drafting of the Transport Act, 1947, for the guidance of which through Parliament Mr. Barnes was responsible. On him also devolved responsibility for its implementation, and notably the setting up of the British Transport Commission, the absorption of privately-owned undertakings, and the start of transport integration. Mr. Barnes has had to face the problems associated with the overall deficit on the operations of nationalised transport, and, not unrelated to that, restricted capital outlay on improvements, industrial trouble in the docks, and the problems of railway wages, railway manpower, and the conscription of railwaymen—all of which remain as formidable tasks for his successor. Despite the many calls on his time, he has been assiduous in showing his personal interest in a variety of railway and other transport questions by visits and attendance at functions.

De-nationalising Road Haulage

THE Road Haulage Association has been quick to submit to the Government its plan for de-nationalising road haulage, following the meeting last month of its National Council. In brief it proposes first to abolish the 25-mile limit imposed by the Transport Act, 1947, and to return the whole of the assets of the Road Haulage Executive to private enterprise. Owners of undertakings compulsorily acquired would have the first opportunity of taking back approximately the same holding as they had to give up. Next, existing operators would be allowed to buy additional vehicles, premises, and equipment held by the Executive. Undertakings voluntarily acquired would then be able to take back assets equivalent to those which they sold out. Finally, any assets still remaining—expected to be small—would be put up to public auction. The plan stresses the need to continue to serve commerce adequately during the changeover and to safeguard the present staff of the Executive. The memorandum is regarded as "merely one step towards the provision for the public of the best and cheapest transfer system possible." Once the "harmful effects" of nationalisation are undone, the Association believes other problems such as the relationship between road and rail can be considered.

British Transport Commission Statistics

THE passenger revenue of British Railways for Period 9, the four weeks ended September 9, only slightly exceeded that for Period 9 last year. The reason for the relatively small rise over 1950 seems to be the high proportion of passenger revenue derived during the summer holiday traffic season from monthly return tickets (49 per

cent. of all passenger takings for the calendar month of July); so that the increase over 1950 in cheap-day travel caused by increased cheap-day ticket facilities and the Festival of Britain would not be so apparent. The Festival may have increased monthly ticket receipts otherwise lowered by increased private car and motorcoach travel. British Railways staff at the end of Period 9, at 601,093, showed little change over the preceding period. In the foot-plate grades totalling some 90,515, there was wastage during the period of 1,194 men, offset by 1,632 recruits. In the category described as "guards, signalmen, shunters, porters, ticket collectors, etc.," totalling 116,728, total wastage was 1,983, with 1,848 recruits.

Overseas Railway Traffics

EXPENSES of the Canadian National Railways continued to rise during the month of September, and showed a total of £16,339,000 against £14,452,000 for the corresponding period of last year; net revenue of £1,306,000 resulted, compared with £2,914,000 in September, 1950. The aggregate net revenue for the year up to September 30 was £10,500,000; this was a decrease of £1,105,000. The gross receipts of the Paraguay Central Railway for the week ended October 19 totalled G322,988; those for the corresponding week last year were G213,440, making an increase of G109,548. Aggregate gross receipts of this system from July 1 show a significant increase on last year—G5,275,523, compared with G3,040,403. The Antofagasta (Chili) & Bolivia Railway recorded receipts of £149,010 for the week ended October 19, an increase of £64,170 on the equivalent week of 1950.

Record South African Earnings

FOR the first time, the earnings of the South African Railways, excluding harbours, steamships, aerodromes and airways, have passed the £100,000,000 mark. The total for the financial year ended March 31, 1951, was £100,649,666, and revenue from all services exceeded expenditure by £8,295,620 for the previous year. Nevertheless, gratifying as these figures are, Mr. P. O. Sauer, South African Minister of Transport, has sounded a warning against complacency, saying that there is still a long way to go to make up for the lean years. Before the 1950-51 surplus year certain payments to railway funds totalling £5,400,000 had to be suspended to balance railway budgets and, although a beginning has been made in putting money back into these funds, much has still to be made up. Last year's satisfactory results have continued; for the first three months of the present financial year (April-June) the railway services alone record a surplus of £2,913,367, compared with a deficit of £327,778 in the same period last year.

Education and Training of Operatives

FOUR teams have visited the U.S.A. this year to study training for industry, and the report* of the first of these teams, which was led by Mr. P. G. Thomson, Works Director, J. Stone & Co. Ltd., has been published this week. Mr. Frank Gilbert, Principal Staff Officer, British Transport Commission, was a member of the team. This report deals with the training of operatives, and from its conclusions we gather that, apart from certain aspects of apprenticeship, there are few revolutionary methods in vogue in the U.S.A. While the team found the standard of training in vocational subjects lower than here, age for age, technical schools have a closer liaison with industry. Students are trained to be effective in a particular occupation rather than knowledgeable in a variety of subjects. Moreover, there is an almost complete disregard for an upper age limit, and a man can be apprenticed even up to the age of 35 years. Among the workshops visited were those of the Chicago, Milwaukee, St. Paul & Pacific Railroad, where the age limits are from 16 to 21 years. Pupils are indentured to the Industrial Commission of the State and not to the railway undertaking.

* "Training of Operatives." Published by the Anglo-American Council on Productivity, 21, Tothill Street, London, S.W.1. Price 3s.

Remedying Shortage of Permanent Way Staff

PARTICULAR importance attaches to the demonstration of mechanised equipment for permanent way maintenance, which was opened at Marylebone Goods Depot by Mr. John Elliot, Chairman of the Railway Executive, on October 31. The total loss of conciliation and workshop grades in the civil engineering department between January, 1948, and March, 1951, was shown to be 13,900 in an editorial in our October 12 issue; and it was estimated then that by March of next year the loss would be 19,000 men, or 23 per cent. of the strength in January, 1948. These shortages necessitated 14 speed restrictions in June, 1950, and no less than 48 in the same month of this year, and it is obvious that to arrest, or to remedy this situation, resolute action must be taken, both to encourage recruitment and to make the conditions of work on the permanent way more attractive. Mechanisation should do much to help in this direction, as it not only speeds up maintenance, but also provides more attractive work, and as such it forms the principal theme of a series of articles on permanent way maintenance, the first of which appears elsewhere in this issue.

Variety and Interest in the Railway Service

IN dealing with "The Interest of Railway Life" in his paper to the Southern Region Lecture & Debating Society on October 24, Mr. J. C. L. Train, Member of the Railway Executive, presented his ideas on a topic which was in many ways complementary to that of Mr. C. K. Bird's Presidential Address to the Railway Students' Association last week. Whilst Mr. Bird concentrated on the value and enjoyment of work, Mr. Train took as his main theme the interest a railwayman may find in his occupation and gave a good indication of the variety of activities open to anyone joining the railway service. Naturally, though Mr. Train referred to many aspects of railway life—police work, underwater diving, engine driving, and so on—he was particularly concerned with the civil engineer's point of view and recounted a number of personal experiences from his early days with the North British Railway. Mr. Train undoubtedly succeeded in conveying to his audience a good measure of his own infectious enthusiasm for railway life, no mean feat among a body where enthusiasm already runs at so high a level as among the members of the Southern Region Lecture & Debating Society.

Progress in Standard Wagon Designs

THE wagon building programme of British Railways for 1951 provides for the production of a number of standard designs worked out in conjunction with the Wagon Standards Committee and incorporating what are considered the best features of earlier designs for the traffic offered. The present programme includes 34 standard wagon types, one being the 12-ton covered ventilated goods wagon for normal merchandise traffic described and illustrated in our issue of October 19, while elsewhere in this issue is a description of a new 20-ton goods brake van the design of which is based on former L.N.E.R. practice and of which 400 are being built in North Eastern Region workshops. Special arrangements have been made to promote good riding at high speeds on fitted freight trains. Side clearances between axleboxes and guides have been reduced to a minimum and manganese-steel liners are provided to reduce wear at this point. There are four cast-iron brake blocks to each wheel. Other modifications in the original design include certain features jointly agreed by the Railway Executive and the N.U.R. as being necessary for efficiency and comfort.

Origin of Route Lever Working in France

ONE interesting point dealt with by Monsieur J. G. Walter, Chief Signal Engineer, S.N.C.F., in his recent paper before the Institution of Railway Signal Engineers was the large use made in France of "director" and especially "trajector" levers. The latter are signal levers

which, under certain circumstances, can become disconnected from their wire transmissions and actuated as interlocking levers, so as to cut down the amount of conditional locking and at the same time reduce the size of the frame. The principles involved took shape when the remodelling of lines and signals at and near Paris-Nord was being undertaken in 1898. The former Nord line thereafter made a considerable use of these levers. In this country such devices have not been much used although the old Sykes electro-mechanical box at Glasgow St. Enoch had "route-levers" to simplify the locking between the large point levers and the small signal slides. At the old Waterloo "A" box, too, there were "gear levers" to economise in the length of the frames, but, as far as we are aware, nothing quite like the "trajector" has been seen here. From this sprang the route lever in power working in France, which soon became the accepted system, and appears again in the new "all-relay" installations.

Mr. Allan Quartermaine

MR. ALLAN QUARTERMAINE'S departure from the Western Region of British Railways on November 9 will mark the end of an era. He became Chief Engineer of the Great Western Railway at the beginning of 1940, and of similar officers on British Railways he has been the last to retain "Chief" in his title. On the Western Region there is a long line of unbroken continuity extending back to I. K. Brunel, who took office in 1835. That succession of civil engineers has produced traditions which apparently are not greatly valued today, but there can be no doubt that they have left their mark, and have played a valuable part in British railway affairs. Mr. Quartermaine's successor, Mr. M. G. R. Smith, who is designated Civil Engineer, is also a product of the Western system, but under the present organisation of British Railways he cannot hope to have the status or exert the influence of his forerunners.

Since Mr. Quartermaine joined the Great Western Railway over forty years ago he has built a high reputation, which is now being recognised in his profession by his choice as President of the Institution of Civil Engineers for the coming year. This is some indication of the esteem in which he is held among his colleagues, not only those associated with railways, although it is as a railway engineer that his influence will be most missed. His personality, not the less positive because of his suavity and charm, has been a source of strength to his colleagues at Paddington and to the counsels of railway engineers in this country. He has a great capacity for taking pains, and his care and attention to detail have been apparent in every matter that he has handled. Not the least of his attributes has been his ability to instil in those working with and for him the impression that their co-operation is valued and considered, and he has always been appreciative of services by his staff. Ever jealous of the high reputation of his own department, he has been justifiably proud of the good relations existing between it and other departments with which it has had dealings.

Mr. Quartermaine has not only a wide skill and knowledge on the technical side of his business, but has shown outstanding ability as an administrator, as well as a broad and understanding experience of human relationships when dealing with staff matters. This has been evident in all his dealings, whether as Chairman of Sectional Council, as Chief Engineer hearing an appeal, or in normal day-to-day affairs. His decisions have always been carefully based and given with a clarity which could be understood and appreciated, and often his justice has been seasoned with mercy in a real desire to be perhaps a little more than fair to someone in trouble. Similarly, as Chief Engineer he has had a great many dealings with local authorities and with contractors carrying out work for the railway. On many occasions he has had to adjudicate on differences of opinion between those directly concerned with the supervision of the work and the firms engaged. His decisions and the reasons for them have always been accepted as just by both sides and there has never been any question of an appeal

to an independent arbitrator. Keenly interested in the welfare of staff, Mr. Quartermaine has gone out of his way to encourage both the cultural and sporting activities of the various branches of the Staff Association. The Western Region Staff who knew him either at Paddington or through his visits of inspection in the country respect, admire and trust him to an extent which is unusual. They, as well as his senior colleagues, will regret the loss to the railway which must follow from his decision to retire.

Transport Staff Relations

ALTHOUGH the literature relating to the transport industry in this country is voluminous, so far there has been a lack of an authoritative textbook on one of the most important aspects. Staff relations, especially with the growth of the transport entities, has been assuming increasing importance for many years. At the present time it probably constitutes the largest single factor in the future efficiency and well-being of the transport industry. Like many other aspects of transport, the general machinery and format of staff relations which now obtain have been arrived at by a process of gradual development, and often the principal ingredient has been the old formula of trial and error.

Now a stage has been reached at which, in the railway field, for example, the machinery of negotiation between management and employees frequently has been cited as one of the, if not the, best in the country, and as providing an example which might well be followed by other industries. Mr. Frank Gilbert, now Principal Staff Officer of the British Transport Commission, who has been very closely identified with staff matters practically since his return from overseas service in the first world war, has now met the need for a well-informed book on the human side of transport. In "Transport Staff Relations" he has surveyed the machinery of negotiation in all branches of the transport industry as well as the facilities which exist for consultation, welfare, training and education. Not only has he brought together and described clearly the agreements on the machinery of negotiation in the various parts of the transport industry, but, in a series of appendices, copies of the official documents setting out this machinery are reproduced. This has the merit of providing a volume which is not only interesting reading but of prime value as a textbook. The arrangement of the appendices is such that, while readily available for reference, they in no way obstruct the free flow of the more general matter. The writing of the book was completed in April last year, but, for all practical purposes, it is still in date, for the only substantial change which has occurred since that time is the repeal of Order 1305, the wartime measure dealing with the right to strike. Its elimination, in effect, leaves the normal machinery in the position which obtained in 1939.

As might be expected from one who for so long has been intimately concerned with labour problems, Mr. Gilbert, while in the main dealing objectively with his subject, also has some views of his own to put forward. Mr. John Benstead, the Deputy Chairman of the British Transport Commission, in a Foreword to the book, commends the wealth of practical experience which has gone into it; he emphasises that the views and observations Mr. Gilbert offers are entirely his own and that, while they do not purport to represent the views of official bodies, they may well arouse discussion.

Very appositely at the present time, Mr. Gilbert lays great emphasis on the need for good staff relations in transport. It is essentially an industry in which all must be ready and willing to co-operate, not only by doing a fair day's work for a fair day's pay, but in doing their utmost even when the eye of management temporarily is absent. He emphasises the need to cultivate the sense of feeling proud to belong to transport and of believing that there is no other industry as good. The provision for

* Transport Staff Relations. Machinery of Negotiation, Joint Consultation, Training and Education, etc. By Frank Gilbert. London: Sir Isaac Pitman & Sons Ltd., Parker Street, Kingsway, W.C.2. 8½ in. x 5½ in. 260 pp. Price 20s.

opportunities for promotion is important but so, also, is the need to keep the men advised of changes and co-operative in pursuit of an aim.

Looking to the future, and particularly to the problem of securing integration, the fact that there is no common pattern of wages, of hours of duty, of conditions of service, of privileges, of pensions, and of many other elements which must be taken into account in viewing transport staff as a whole, Mr. Gilbert expects that a carefully-ordered approach towards a complete, national comprehensive scheme will be devised by the British Transport Commission. His long and practical experience of staff negotiations is probably the basis of his warning that there can be no hope of the production of a master-plan and that a problem of such magnitude is capable of only peaceable solution. On the other hand, he is quite sure that something like a concerted move towards parity of rates and conditions for comparable jobs will have to come about if there is to be a really properly-integrated system of transport. Since the book was written, there has been some slight telescoping of grades, which is a move in the direction Mr. Gilbert advocates, but it is as yet so small as to be insignificant. There is one point which is made when discussing steps towards uniformity of grades and a common nomenclature of managerial titles which we commend to the transport authorities. Mr. Gilbert points out that "the term 'manager' is not without merit."

Mr. Gilbert does not instance the Ulster Transport Authority as an example of what he has in mind, and admittedly the relative sizes of the U.T.A. and the B.T.C. are so different as to make a comparison invidious. Nevertheless, the measure of integration which has been effected by the U.T.A. is in excess of that which has been found possible by any other transport agency in these islands. We do not think that any responsible officer of the U.T.A. would question our view that the agreements which have been made with the trades unions in Northern Ireland have been a factor of fundamental importance in this achievement.

There should be a wide measure of support for Mr. Gilbert's contention that nationalisation of British transport has created a new situation and demands a fresh approach on the part of the unions. He argues with force that in some respects the unions' structure and protective weapons belong to the past, and that full co-operation should take the place of distrust. The membership should be educated to understand that co-operation carries duties, the first of which is to the customer. He urges the unions so to order their affairs that discipline in their ranks is imposed and maintained, and to see to it that the days of unofficial stoppages are numbered.

There is another factor in the successful operation of a nationalised transport undertaking which is hardly capable of over-emphasis. This is that in all approaches to the problem of integration, it is vital to keep the goodwill of the men and women in the industry. For many, nationalisation was the realisation of a dream, but the reality did not always fit precisely the shape or colour of that dream. There were also those to whom nationalisation was repugnant as a political theory, and they have sometimes taken unkindly to the changes which followed the establishment of the Commission and the Executives. As Mr. Gilbert points out, in both groups there is an immense reservoir of technical skill, craftsmanship, ability, energy, and commonsense. The great majority are not politically-minded, but professionally transport-minded. Transport is their life's job and all they want is to be allowed to do that job, and to know where it is leading them.

Although "Transport Staff Relations" is valuable as the first up-to-date textbook on its subject, it will be apparent that it is more than that. It contains a great deal of commonsense in the views it postulates as to how labour relations and problems should be approached. If some are controversial, so much the better, for these are matters which benefit from discussion. The usefulness of the book will not be confined to readers and students in Great Britain. Overseas railway administrations will find a good deal in it which has a bearing on their own staff problems.

British Railway Goods Stock and Brakes

NOW that nationalisation has eliminated the private ownership of some 650,000 wagons on British Railways, the time is ripe for the selection of different standard types and designs of goods stock as the most suitable for the various kinds of traffic offering, for efficient traffic operation, and on economic grounds. We publish elsewhere in this issue the summary of a valuable discourse on the subject by Mr. S. E. Parkhouse, Chief Officer (Operating), the Railway Executive, whose views on the equipment of goods stock with continuous brakes are of unusual interest, besides having the authority derived from Mr. Parkhouse's long and varied experience in this and other matters.

It is most unlikely, as Mr. Parkhouse says, that the former main-line companies would have decided to fit all brake-fitted goods stock with the Instantan and not the screw coupling. One of the objections to the Instantan coupling quoted, is that it "is not satisfactory for attaching to passenger trains." If it is correct—and the paper does not contradict it—it is hard to ignore this objection, which is important, unless some dual form of coupling could be fitted. After showing good reasons why the all-steel open merchandise wagon should be adopted as standard, Mr. Parkhouse, in comparing the relative merits of hinged and sliding doors in covered wagons, considers the hinged door preferable, as it can be better braced to withstand shocks on the ends of the vehicle sustained in shunting. Of the two types of wagon at present in use for the carriage of steelwork, he has no hesitation in preferring the bogie bolster to the single-bolster four-wheeler. The latter is less satisfactory when used in series for long loads, as they cannot be made so secure as on a bogie wagon and tend to become displaced due to the play between the single-bolster wagons. The tare weight of the latter is also greater than if bogies are used, and the author recommends that the building of single-bolster wagons be discontinued. No selection of the most suitable type or types of perishables van can, it seems, be made at present owing to the uncertainty in the requirements of the meat trade.

In discussing coal-wagon capacity, it is explained that the economical advantage of the 16-ton over the 13-ton wagon, and the 24.5-ton over the 21-ton is due to the fact that certain wagon components, such as wheels and axles, are not stressed to permissible limits in the case of the 13- and 21-ton wagons, whereas in the 16- and 24.5-ton wagons full advantage is taken of permissible stresses. Incidentally, the 24.5-ton coal wagon is the largest that can be designed, because its gross weight is 35 tons and a 17.5-ton axle-load is the highest that gives reasonable freedom from restrictions on route availability. The reasons why the dimensions of the 24.5-ton wagon—and particularly its height of 10.11 ft. above rail level—do not permit of its universal use at present may not be obvious, but it is probable that restricted headroom at collieries is the explanation.

Mr. Parkhouse also argues that there is no scope for the economical use of 40-ton and larger wagons because the heavy annual charges far outweigh any operating advantages and economies obtained. Apart from the physical limitations to the use of such a wagon as a standard, he considers that "the evidence is conclusive that from the financial aspect the use of such wagons is not justified even for the conveyance of trains in block loads between points where the terminals are capable of dealing with the wagons."

As an example of how additional line-capacity secured by fitting goods stock with continuous brakes may avoid capital expenditure on engineering schemes with the same end in view, he points out that on the L.M.R. between Rugby and London, in the up direction 91 passenger and 61 freight trains are booked to run in the 24 hr. On the section between London and the new town of Hemel Hempsted an electric service of passenger trains will probably be required. In present conditions, between Watford and Hemel Hempsted, line occupation with slow moving freight trains is so heavy that it is not practicable to accommodate such a service on the existing lines, and widening

would be necessary. If all freight trains were run as fitted freight trains, he maintains, they would to a large extent travel over the fast, much reducing the occupation of the slow lines. Recently, 14 freight trains were booked daily over the up fast line and 47 over the up slow line. If all trains were fitted with the continuous brake, 45 could travel over the fast line and 16 only over the slow line. With this reduced occupation of the slow lines the electric services could be accommodated on these lines and widening would not be necessary.

In present conditions, states Mr. Parkhouse, the running of unbraked freight trains is an anachronism, and it may be that as a long-term policy, the provision of continuous brakes on all freight stock on British Railways is justified in the national interest. By making such a change, which would effect a definite advance in the reliability and general efficiency of rail transport in this country, a most valuable contribution would be made to the industrial welfare of the country.

Despite the high proportion of short hauls in this country, on which the benefit of the provision of continuous brakes in freight trains would be small, he emphasises his personal view "that there is a *prima facie* case for making the change, and indeed I think that the equipping of all freight stock with continuous brakes is one of the big decisions which has got to be made to promote the efficient running of British Railways."

These remarks seem fully justified. One has only to consider practice in other countries to be convinced that Mr. Parkhouse is correct. Even relatively undeveloped countries like India have for nearly half a century standardised vacuum-braked goods train working.

A Trial 50-cycle Line in Britain?

AN editorial article in our October 5 issue suggested that the conclusions of the B.T.C. committee on electrification of railways might well require rigorous re-examination as a result of the Anney conference on 50-cycle traction. The information made available at the conference has confirmed this view, and further powerful support has been forthcoming in a letter published in our October 12 issue, from the Electrical Engineer of the New Zealand Railways. He challenges the accuracy of some of the facts in the report and emphasises in particular the saving in costs resulting from the lighter currents carried—one-quarter of the quantity of copper required for 1,500 V. d.c., and lighter and cheaper support structures.

It will be remembered that the B.T.C. committee dismissed 50-cycle electrification from serious consideration as a standard (except for some secondary and branch lines), for the following reasons:—

- (i) The disequilibrium created in the three-phase industrial system by asymmetric single-phase loads.
- (ii) The difficulty of arranging inter-running between a standard high-voltage 50-cycle system and the low voltage d.c. of the Southern Region.
- (iii) Interference with communication and signalling circuits.
- (iv) The lack of adequate information on operation, first costs, and maintenance costs of rolling stock.

These specific points have been covered at the Anney convention and the S.N.C.F. has found that even after providing specialised equipment to overcome the difficulties, substantial economies have been effected compared with an equivalent d.c. system. Perhaps the problem which at first sight presents most difficulty is that of inter-running, but even this could be solved without undue difficulty by the use of rectifier locomotives.

On the evidence of the B.T.C. report on the one hand, and the Anney convention on the other, it seems that the Railway Executive may be backing the wrong system. But the B.T.C. cannot accept, and rightly so, even the weightiest and best substantiated evidence of success in Continental countries as a basis for a drastic departure from long-established d.c. practice in this country. Conditions differ, maintenance may not be of a sufficient standard, and our manufacturers may find a.c. traction equipment unduly expensive to make. The only satisfactory answer to this important problem is a trial line in this country, and there is much to be said for the suggestion to electrify at 25,000 volts the

Lancaster-Heysham line, as proposed by a correspondent in our October 19 issue.

If such a step were agreed to in principle, it is not unlikely that the large electrical manufacturing firms in this country who specialise in traction might be prepared to supply equipment on a "sale or return" basis, conditional on their being admitted as partners in the research, with full access to both technical and financial results. The results of such co-operation would be of great value to both parties; fears have been expressed in these columns that if further development of 50-cycle electrification takes place abroad, Britain's predominantly d.c. traction market may hamper our manufacturers in their export trade.

Economists tell us that a successful export trade can be built only on the overspill from a thriving home market, and certainly few manufacturers would care to venture money on experimental equipment of any kind knowing that facilities for full running tests only existed overseas with all the consequent formalities and extra expense. British Railways should take the initiative in persuading British electrical manufacturers to experiment in this new field, so that we may draw the benefit in exports from a thriving home market for 50-cycle traction equipment.

Government Agreement on the G.N.R.(I.)

AT last the Governments of Northern Ireland and the Republic have agreed on the acquisition and future administration of the Great Northern Railway (Ireland). The undertaking will be acquired jointly by the two Governments, each of which will contribute an equal share of the consideration to be paid to the company. The amount is not specified in the announcement, but it is expected to be £4,500,000, the maximum figure which the Governments intimated they would consider, as stated in our October 12 issue.

The fixed assets in each area will become the property of each Government, but Dundalk Works, which will continue to serve the present G.N.R.(I.) system, and all other assets and obligations will be transferred to a joint board, on which each Government will be equally represented and which will operate the system as a whole. The agreement provides that no cross-border service operated by the joint board shall be withdrawn without approval of both Governments, and that if continuance of an uneconomic service is required by one Government only, that Government will bear the loss involved. The board, with the concurrence of the Government concerned, will determine the local services to be provided in each area. The Governments are to agree on the apportionment of the financial results, according to their area of origin.

In the North, the Ulster Transport Authority will represent the Northern Ireland Government on the joint board, own the fixed assets of the company, and receive profits or payment for losses. Coras Iompair Éireann almost inevitably will be the designate of the Government of the Republic for these purposes. The Governments, which had already agreed on the need to assist the company financially until its acquisition, will share the cost of this assistance in the proportion of 60 per cent. by the North and 40 per cent. by the South. This is a reasonable apportionment in view of the fact that some two-thirds (319 route miles) of the railway system are north of the border and that it is this section which is responsible for the company's losses—a direct consequence of the deprivation of the company's road powers in the Six Counties. These proportions may have to be adjusted to take account of additional revenue derived from an increase in railway rates.

The G.N.R.(I.) board has stated that it is making arrangements to obtain the views of the stockholders on the proposal to sell the undertaking for £4,500,000. A ballot of the stockholders is expected to be held, on the lines of that held in January after the price of £3,900,000 had been announced by the Governments, but they can do little but accept the terms, with the reservation that they are unjust. They have repeatedly asked to be paid the break-up value of £10,876,492, assessed by Government advisers—a figure

which, if anything, has since increased by reason of the rise in prices—or for the question to go to arbitration. As, however, the Governments have refused arbitration, on the grounds that they are, in effect, arbiters between the company and the public, the stockholders have no alternative, particularly as the Governments can invoke compulsory powers, if their compensation offer is rejected. The distribution of this amount expected on the basis of Stock Exchange values was given in an editorial note dealing with the increased price in our October 12 issue.

The agreement between the Governments is on the lines generally expected, although there had been grounds for belief that the joint board would be concerned only with the Belfast-Dublin main line and the cross-border penetrations. In the main it follows the recommendations made by Sir James Milne in his report on transport in Ireland submitted in December, 1948, to the Government in Dublin. In a supplementary statement, the Dublin Minister for Industry & Commerce has indicated that the G.N.R.(I.) road services in the Republic will be managed by the joint board, in the interests of unified management; they will presumably be operated by C.I.E. for the Government.

The statement leaves several questions unanswered. The staff, which has shown great loyalty during many difficult months, will wish to be reassured that its interests will be safeguarded. The fact that Mr. G. B. Howden is now the General Manager of Coras Iompair Éireann as well as of the G.N.R.(I.), will ensure that all practicable measures to this end will be taken. The maintenance of Dundalk Works will give satisfaction in the South, to whose economy it is important. The three G.N.R.(I.) hotels in Northern Ireland, at Bundoran, Rostrevor and Greenore, as fixed assets, will presumably come under the control of the U.T.A., as the delegate of the Six Counties Government.

It would seem that C.I.E. will receive more, proportionately, than the U.T.A. as it will be responsible for working the southern part of the system which has operated profitably even in recent years—last year's results showed a surplus of £123,096 in the Republic, against a loss of £251,072 in the North. The operation by the U.T.A. of the parts of the G.N.R.(I.) which cross and recross the border may present certain problems. The situation of the County Donegal Joint Committee is interesting; at present it is managed by the G.N.R.(I.) and the U.T.A.; and it seems logical to suppose that it will be treated like the G.N.R.(I.) and its assets transferred similarly.

Modified Indian Railway Board

IN his speech introducing the Indian railway budget of the current year, Mr. N. Gopalaswami Ayyangar, Minister for Transport & Railways, made certain announcements that have not so far received general attention. He pointed out that, since the transfer of power in 1947, many Indian officers holding key positions—often with no previous experience in them—had more than proved their mettle and competence. Under them, pre-partition standards of work had been maintained, and in some aspects of administration they had been responsible for real improvement. Conspicuous among these officers was Mr. K. C. Bakhle, who, after a fine record of service, has subsequently retired from the post of Chief Commissioner of Railways; he was the last holder of this office now abolished by part-reorganisation of the Railway Board.

The Minister explained that, though no sweeping changes were at present being made, he had decided to reduce the strength of the Board and make certain changes in the manner in which it functioned, so as to suit the altered conditions arising from there now being a Minister responsible to Parliament for railway affairs. The new procedure was to hold a regular weekly meeting of the Board as a whole with the Minister to discuss and decide questions of policy. In this way overall co-ordination was ensured, at Board and at Ministerial level, and it was no longer necessary for Board meetings to be presided over by a Chief Commissioner in charge of no specific portfolio, and responsible for overall functional supervision and co-ordination of its work.

The Minister said that the different Members of the Board constituted what might be described as an All-India Railway Executive, whose administrative work was suitably distributed amongst functional heads, each presiding over a particular department of railway activity. On questions requiring co-ordination among the different departments the Members came together and reached decisions as a collective body. The Minister controlled the work of the Board and all directives given by him were carried out by it. The post of Chief Commissioner would therefore be retrenched from April 1, 1951, and the Board would be reconstituted with three functional Members and the Financial Commissioner. The Secretary of the Transport Ministry would, under existing conditions, continue to be *ex officio* an additional Member. One of the functional Members would be appointed Chairman of the Board and in that capacity *ex officio* function as Secretary to the Ministry. He would be responsible for the work of the Board as such and for intra-Board co-ordination required for that purpose. He would also be in charge of the small secretariat attached to the Board as well as being a functional Member. The Financial Commissioner would retain his special position and act as Secretary to the Minister in matters financial. The Board would function as a corporate body advising the Minister on all major questions of policy and issuing executive orders for the administration of the railways.

Abolition of the post of Chief Commissioner and certain other economies in the organisation of the office of the Board, including a reduction in the status of the post of Secretary, claimed the Minister, would save Rs. 3½ lakhs (£26,250) annually, or 16 per cent. on the total establishment charges.

Freight Movement on British Railways

(By a Correspondent)

THE four-week period of the year to September 9 is rather a light one for freight traffic on British Railways. This year No. 9 of *Transport Statistics* shows an increase of 556,000 in originating tonnage (2.6 per cent.), along with an increase in ton-miles of 35.9 million (2.2 per cent.). The average length of haul for all classes of traffic was 72.76 miles, 0.87 of a mile shorter than in 1950, and 4.1 miles less than the haul in the previous period to August 12, when minerals and coal travelled further afield. The extent to which this change would ease the volume of work may be judged from the tonnage and ton-mile figures for the 36 weeks to September 9. While tonnage rose by 1,272,000 (0.7 per cent.), ton-miles increased by 412 million (2.7 per cent.) because the length of haul throughout the first eight periods was never less than 74 miles and in March was over 77.

British Railways forwarded 20,000 more wagons in Period 9 than they despatched last year and raised the average wagon load at starting point by quarter-of-a-ton to 8.43 tons. The North Eastern Region, with heavy mineral and coal carryings, had a load of 10.13 tons, 2 tons above the L.M.R. average. The Western Region load of 8.16 tons was disappointing as its tonnage was higher by 351,000 tons (10.3 per cent.). The Eastern Region made a better showing with an average of 8.61 tons, though its tonnage increased by only 77,000 tons (2.3 per cent.).

Better wagon loading raised the average train load from 153 to 157 tons. The L.M.R. raised its load by 10 tons to 181, the Western by 2 tons to 160, the Eastern by 3 tons to 166 and the N.E. Region by 6 tons to 152. Wagon miles for the whole system increased by 7,000 to over 344 million. The Regional figures varied erratically, the L.M.R., Western, and Scottish working fewer wagon miles, while the N.E. Region worked 956,000 more (2.9 per cent.).

All Regions, except the Scottish, ran fewer freight train miles. The L.M.R. cut its mileage drastically by 100,000 (2.9 per cent.) and reduced train-engine hours in traffic by 9,000 (1.8 per cent.). The Western Region, though running 12,000 fewer freight train miles (0.6 per cent.)

had train engines in traffic for 4,000 additional hours (1.9 per cent.). In consequence it was the only Region working less net ton miles and wagon miles in a train engine hour, as shown in the table below.

FOUR-WEEK PERIOD TO SEPTEMBER 9, 1951 AND 1950

Region	Per train engine-hour			
	Net ton-miles		Wagon-miles	
	1951	1950	1951	1950
London Midland	1,103	1,057	219	216
Western ...	1,121	1,143	222	229
Eastern ...	1,235	1,209	253	252
North Eastern ...	1,425	1,328	281	264
Scottish ...	1,003	970	227	224
All Regions ...	1,135	1,103	232	230

In spite of the setback in the Western Region, it kept ahead of the London Midland, which always wins the wooden spoon in contests of this kind between the four "heavy" English Regions.

Taking freight train speed as another gauge of mobility, British Railways recorded a slight betterment, to 8.72 m.p.h. All Regions moved more freely, except the Western and L.M.R. The Scottish, running light train loads of 111 tons, registered a speed of 10.76 m.p.h. The N.E. Region came close with 10.65 m.p.h. The Western slipped back from 9.13 m.p.h. in 1950 to 8.90, but was still slightly in front of the Eastern. Far behind came the London Mid-

land, with a return of 7.43 m.p.h., '08 of a mile below 1950 and in the previous period to August 12.

A statement of freight train speeds since nationalisation shows that the sluggishness of the L.M.R. is not a thing of recent growth, like the decline in operating efficiency in the Western Region.

FREIGHT TRAIN SPEED (M.P.H.)

Year	L.M.R.	W.R.	E.R.	N.E.R.
1948	6.99	9.15	7.92	9.76
1949	6.99	9.24	8.19	10.17
1950	7.10	8.83	8.39	10.08
1951	7.03	8.57	8.56	10.35
(Average of nine periods)				

The inertia of the L.M.R. may be due in part to its size, for it originates about 28 per cent. of the total freight tonnage and works 36 per cent. of the total ton-miles by running 32 per cent. of the total freight train miles. The control of such extensive operations, spread over two main routes of 300 miles or more between London and Carlisle, is probably beyond the capacity of one Superintendent. In spite of boundary adjustments, the London Midland Region remains to a large extent a survival of the 1923 grouping, which was adopted in haste to satisfy many conflicting interests. Now that the railways are unified, the whole set-up of the Region could be examined afresh with advantage.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Dundalk Newry & Greenore Railway

October 24

SIR,—In spite of great discomfort and apparent peril, I took pleasure once again during the summer in travelling over the Dundalk Newry & Greenore Railway, under consideration for closing at the end of the year.

It will be recalled that the D.N.G.R. was part of the L.N.W.R., providing rail connections between Greenore, with Dundalk for Dublin and the south, and Newry for Belfast and the north of Ireland. During the years the harbour of Greenore has become almost disused, but local traffic on the railway seems to be reasonably good. It must be admitted that much of the railway is in urgent need of renewal, not only the permanent way, but also signalling equipment, rolling stock, and buildings; no doubt the costs involved would be high. Many of the original features are still evident. One travels in the original six-wheel coaching stock, still painted in chocolate and white of the parent company, and bearing the coat-of-arms of the D.N.G.R. One can see also many L.N.W.R. type signals, still high above the line on timber posts with original L.N.W.R. slotting and control arrangements.

It is indeed a great pity that the situation has been allowed to deteriorate to such an extent on this line, and one feels sorry that in view of the ever-increasing popularity of Eire as a holiday country, and the bottlenecks at Dun Laoghaire (particularly during the late summer), the Holyhead-Greenore link could not be re-established, and consequently the D.N.G.R. be modernised to deal not only with passenger but also freight traffic thereby involved.

It is probably the intention of the G.N.R.(I.) to transfer all passenger services to its buses, which run about parallel to the railway, but it is difficult to see how the freight requirements could be served so well by road; no doubt such considerations tend to increase local opposition.

No doubt finance is the controlling factor. One cannot see any case for the further interest of the Railway Executive in the D.N.G.R. and the financial condition of the G.N.R.(I.), which has been made abundantly clear in your columns, probably prevents extensive renewals being undertaken. It would presumably be that company on whose

shoulders the financial burden of restoration would fall, and the difficulties involved will be easily appreciated. Nevertheless, the future of the D.N.G.R. will be watched by many railwaymen and others alike, while its future is in the balance, in the hope of seeing it once again re-established to its original importance and capacity.

Yours faithfully,

J. P. CUNLIFFE

48, Hillside Road, Glasgow, S.3

Railway Efficiency

October 21

SIR,—Solely in the interests of statistical accuracy, I join issue once again—but for the last time—with your correspondent Mr. E. R. B. Roberts. He disputes the figure of £116,996,000 I quoted as the total receipts from passengers for the year 1947 and asserts it should be £169,075,000, a difference of a mere £52,000,000 odd. The figure of £116,996,000 is correct and can be found on pages 356 and 358 of the B.T.C. Report for 1948. Mr. Roberts then misquotes me as saying the passenger train miles would have to be increased from 20,177 millions to 50,846 (to maintain existing passenger revenue if fares were reduced to ½d. per mile), but I said "passenger miles"—a very different thing, as anyone who has even an elementary knowledge of operative work or the principles and economics of transport (Mr. Roberts's phrase) will appreciate. The fact that Mr. Roberts does not know the difference between "passenger miles" and "passenger train miles" may be taken as the measure of his ignorance of the subject.

As Mr. Roberts is so sure he knows the answers to the B.T.C.'s financial problems, particularly in regard to passenger traffic, surely the obvious course would be for him to send his proposals to the members of the Transport Tribunal, at present considering the Commission's application for increases in fares, who would, no doubt, give them the consideration they deserve!

Yours faithfully,

J. H. LAUNDY

Rustington, Sussex

THE SCRAP HEAP

Ministers of Transport

Lord Leathers (appointed Secretary of State for Co-ordination of Transport, Fuel & Power, with Cabinet rank.)

J. S. MacLay (appointed Minister of Transport & Civil Aviation)

Sir Eric Geddes	1919-1921
Viscount Peel	1921-1922
Earl of Crawford	1922
Sir John Baird	1922-1924
Harry Gosling	1924
Rt. Hon. Wilfred Ashley	1924-1929
Herbert Morrison	1929-1931
P. J. Pybus	1931-1933
Hon. Oliver Stanley	1933-1934
L. Hore Belisha	1934-1937
E. Leslie Burgin	1937-1939
Captain Euan Wallace	1939-1940
Sir John Reith	1940
Lt.-Colonel J. T. C. Moore-Brabazon	1940-1941
Lord Leathers	1941-1945
Alfred Barnes	1945-1951

1951

beside the little river." Her governess told her that "though I was of no importance whatever in myself, I was now of some, inasmuch as I had seen the first train pass along the railway."

Accident Anticipated

A breakdown train with police investigators on board left Leopoldville, Belgian, Congo, one hour before an accident occurred.

A railway employee at Musoshi despatched a train. After doing so he telephoned another station at Welgiligen telling them to keep the single line clear. The stationmaster at Welgiligen shouted: "I have just despatched a train to you." The speed of the two trains was calculated, and a breakdown train was sent. Wreckage was found.—*From the "Daily Express."*

Letting Off Steam

It is hardly surprising to learn that the Transport Tribunal has been receiving letters, some complaining and others "merely abusive," from aggrieved members of the public. Although no notice will be taken of those communications some of the writers have been gravely and openly reminded by the President of the Tribunal that they are "inadequately informed of the ordinary law relating to contempt." No doubt it would be a most unpleasant surprise if such correspondents found that law rigorously invoked against them. If they knew about contempt of court at all they would probably think it applies only to criminal proceedings. Their belief is that a Transport Tribunal is just another Government department and as such open to verbal assault by anybody.—*From "The Manchester Guardian."*

The Norwegian Way

In Norway, train compartments are kept scrupulously clean by smartly uniformed young women who come along, probably twice on a long journey, and clean window sills and tables. Shortly after boarding the train the conductor presents passengers with an illustrated booklet containing a map of the line. He passes through the train at intervals and calls the attention of foreigners to special view points and places of interest.—*From a letter to the "Daily Mail."*

Railway to Renishaw

A correspondent writes that the closing of Eckington & Renishaw Station, on the former North Midland line and close to the Sitwell estate, recalls the account in Sir Osbert Sitwell's "Two Generations" of the coming of the railway to the district. The recollections of Georgiana Sitwell include that of the making of the line "through the park at Renishaw when I was eleven or twelve years old (1835-1836)." She saw from the Renishaw lawn "the first small train ... steaming through the green meadows

Engine Heats Hotel

When an hotel steam heating pipe broke in Boston, U.S.A., a railway engine from the Boston & Maine Railroad was hired, a pipe connected to the hotel, and the engine steamed all night to keep the hotel warm.—*From the "Evening Standard."*

Ahead of Time

I told an inspector on the "Yorkshire Pullman" that if we were in on time it would be a welcome change. He bet me we would be early. Later I saw him telling the driver and fireman about the bet. We arrived early at Kings Cross and I was there greeted by the blackened but smiling faces of the driver and fireman and exultant inspector.—*From a letter to "The Evening News."*

Religious Services at Stations

The Sunday school held at Troutbeck Station and referred to in our October 5 issue is not the only example of religious activity at railway stations. A corre-

Infiltration

(Diesel-electric locomotive No. 10202 hauls West of England train from Waterloo)

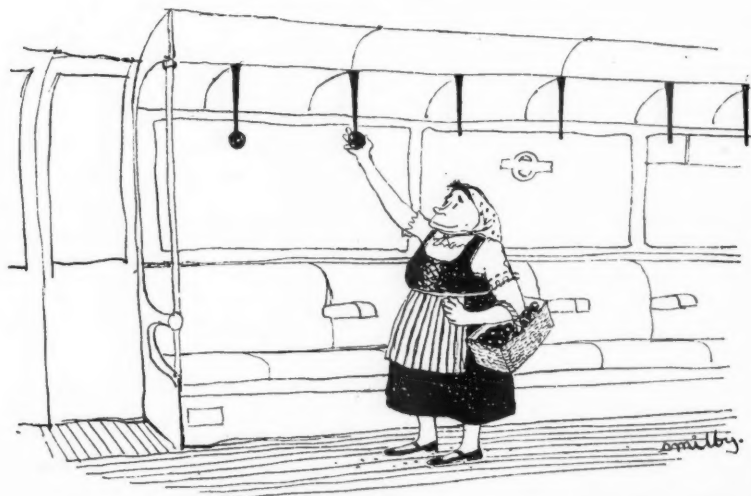
Now, here's a pretty how-d'ye-do—
Diesel "Ten thousand, two-o-two"
Is beetling down to the balmy west
And thumbing its nose at Bulleid's best.
Shades of Maunsell and Drummond,
too,
To think that the platforms at Waterloo
Should come out in spots like a dose of measles
Induced by a crop of dyspeptic diesels!

They're infiltrating, one by one,
(A favourite trick of the oily Hun),
Ere long, no doubt, they'll extend their sway
And lay down the law in the usual way.
And say to the Moguls of Motive Power:
"These ancient biddies have had their hour—
"You can take your kettles off the boil,
"Henceforth we'll do the job on oil."

Progress possesses the coldest shoulder,
So I have learned, as I've grown older,
And Jamie Watt and his famous dream
Are vanishing in a cloud of steam.
Yet, commonsense and circumspection
Must counsel prudence in this connection,
With just a spot of well-timed inertia,
In view of the recent news from Persia.

I shall be faithful in my fashion,
In fact, I will wager my next meat ration
That British locos. will do their stuff
Until I, not they, have run out of puff!

A. B.



[Reproduced by permission of the proprietors of "Punch"]

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Enlargement of Whites Station

To cope with the goldfields traffic, two new loops are to be provided at Whites, between Kroonstad and Bloemfontein, and the junction for the Orange Free State goldfields branch to Odenaalsrus. There are 66 trains a day—54 on the main line and 12 on the branch. The daily traffic average is 7,650 tons.

Class "25" 4-8-4s

The contract price of the 60 Class "25" 4-8-4 locomotives ordered from the North British Locomotive Co. Ltd., as recorded in our October 5 issue, is £3,070,650. The locomotives will be an improved version of the Class "15F" 4-8-2s and will have a total weight in working order of 230 tons. The tender will contain 10,000 gal. of water and 20 tons of coal, compared with the 6,000 gal. and 14 tons of the Class "15F" tender. The coupled wheels will be 5 ft. in diameter. Vacuum brakes, Wakefield mechanical lubricators and Timken roller bearings will be fitted.

WESTERN AUSTRALIA

Imported Houses for Railwaymen

The first 80 of 500 pre-cut houses for railway employees have reached Fremantle from Great Britain and will be erected soon at selected centres where the need is greatest. The present programme of 500 is part of a larger scheme already planned to cover from 1,200-1,500 houses.

The landed cost at Fremantle is about £1,030 a house. Important components to be supplied locally will increase the cost of each by about £300. The final cost after erection may be somewhere near £2,000.

The railways at present own 1,000 houses occupied by its employees; this number is far short of the demand, and the shortage has been a major cause of failure to attract employees to the service. Local building capacity has proved insufficient to keep pace with the housing programme. Another reason for importing houses is to avoid the use of local labour and materials required for private housebuilding.

CANADA

Canadian Locomotives for the U.S.A.

Diesel-electric locomotives of three standard U.S.A. makes are now being built in Canada, the Alco-General Electric type by the Montreal Locomotive Works, the Fairbanks-Morse type by the Canadian Locomotive Co. Ltd. at Kingston, and the Electro-Motive type at a new subsidiary works of the General Motors Corporation at London, Ontario. The London works is now

being used to relieve pressure on the main Electro-Motive works in the U.S.A., and during the past year has built a number of locomotives for the Pere Marquette Division of the Chesapeake & Ohio Railroad, for the Wabash Railroad, and for the Great Northern Railway; one-third of the Canadian firm's output thus goes to the U.S.A.

BRAZIL

United States Aid

On his return from Washington the Minister of Finance informed the press of his arrangements with the International Monetary Fund and the Bank for Reconstruction & Development. The President's economic-financial policy, the Minister said, is based on budgetary equilibrium, checking inflation and encouraging private enterprise to co-operate in national development. For this policy to succeed it is essential to equip transport systems and ports, and increase installed electrical capacity.

With this object Congress is to be asked to provide 10,000 million cruzeiros (£200,000,000), spread over five years, and the international banks will grant supplementary credits of an equivalent amount to finance the necessary imports. It is agreed, he said, that the most urgent phase of the General Plan, drawn up by the United States-Brazil Economic Mission, is to improve railways and ports. The sum required to carry out this part of the programme, 4,000 million cruzeiros (£80,000,000) has been earmarked.

TRINIDAD

Railway Board

In an effort to reduce the operating deficit of the Government Railway, expected to be \$2,639,000 this year, the Government has issued a Bill to establish a nine-member executive board to manage the system, subject to direction by the Governor-in-Council.

SAUDI ARABIA

Completion of Line

The railway being built by Aramco reached Riyadh, the capital, on October 10, six weeks ahead of schedule. Further ballasting and other work remain to be done before the official opening on January 1.

Three Budd stainless-steel self-propelled cars, supplied at a cost of \$200,000 each, have been delivered for passenger service. They will operate a thrice-weekly service from Dammam to Riyadh, covering the 556 km. in 10 hr., with stops at Dhahran, Abqaiq, Hofuf, Ain Haradh, and Al Kharij. Dammam and Riyadh stations are permanent structures, now completed.

Originally, 50,000 passengers a year were expected, but in the first nine months of 1951, 200,000 were actually carried over the completed section. All trains and stations are equipped with two-way radio communication. The Central control is the despatcher's office at Dammam. Shifting sands, which are proving a problem in the Dahana and Jafura regions, are being overcome by oil-spraying tank wagons which pack the sand, and by specially-fitted sand-plough wagons pushed by locomotives.

There are now 400 units of rolling stock on the line, including 15 diesel locomotives and the three Budd cars; most of it is equipped with Timken roller bearings. The official livery is green, with white chevrons on the fronts of the diesel locomotives. Except for top management, it is expected that all operation will be in the hands of Saudi Arabs by the end of 1952.

AUSTRIA

Braz Power Station

To supply power requirements for the electrified lines, especially after the completion of the electrification works on the western line connecting with Vienna, the railways are constructing a power station at Braz, near Bludenz. The power station, situated at a lower level than the Spullersee in the Vorarlberg, will use the waters of this basin, in addition to water deviated from the Alfenz stream, originating in the Vorarlberg and flowing into the Klostertal.

The station will be equipped with three dynamos, each of 11,000 h.p. Orders for the equipment were given to Austrian firms some time ago. It is expected that the station will be ready for operation in the autumn of 1952.

WESTERN GERMANY

Higher Rates and Fares

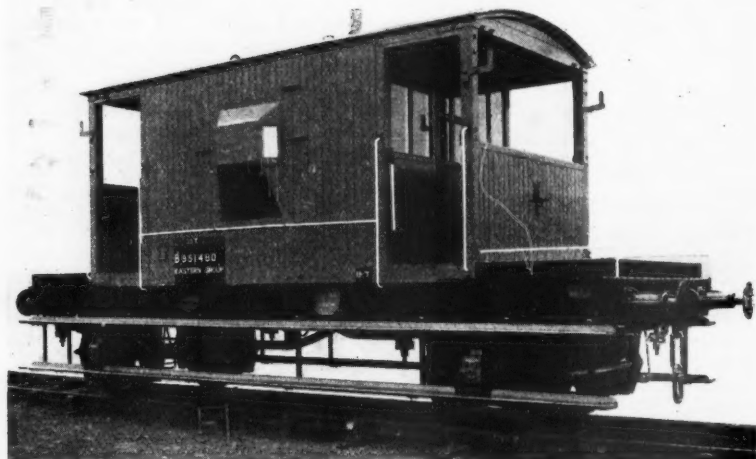
The Federal Council has approved the railway rate and fare increases proposed by the Federal Government. The only modifications introduced by the Council were in the dates from which some increases are to operate.

Electrification

As a further step in the electrification of the Stuttgart-Karlsruhe line, electric traction was inaugurated between Bietigheim and Mühlacker, 14 miles, on October 7, the day when the winter timetable was introduced. Nearly all passenger trains between Stuttgart and Mühlacker are now electrically worked, and the gain in running time is up to 12 min. in the Stuttgart-Mühlacker direction and up to 25 min. southbound. Stuttgart suburban traffic is expected to develop greatly as a result.

British Railways Standard Wagons

A new 20-ton goods brake van of which 400 are being built at North Eastern Region shops



BEFORE the war, goods brake vans as a general rule operated only within their own railway, but war conditions greatly increased the number of freight trains running direct from one system to another, and to avoid delays at interchangeable points, through working of brake vans was instituted.

With the closer working which has followed unification this practice has been greatly extended. The idea of a standard goods brake van for all companies sprang from these conditions, and after pooling ideas, four vans were built by the former main-line companies as a basis for agreement.

After nationalisation it was decided at an early stage that the 20-ton goods brake vans built by the former L.N.E.R. provided the best starting point for developing a standard vehicle, and in 1948 and 1949 two of

of these vehicles were modified to incorporate the features jointly agreed by the Railway Executive and the N.U.R. to be necessary for efficiency and comfort.

After inspection by goods guards and shunters, and the incorporation of further suggestions by them, and after trial runs in ordinary and express goods services, the Railway Executive and the union were agreed that a satisfactory standard van had been evolved; 400 vans to this design are at present being turned out from the Faverdale shops of the North Eastern Region in the 1951 wagon building programme, and are being put into service on several Regions of British Railways.

The trussed underframes, which are constructed of standard rolled-steel sections, have the central spaces filled with concrete. A layer of concrete

varying from 5 in. to 6 in. thick is then laid on the top. This gives the vehicle the necessary tare weight and takes the place of cast-iron ballast weights which were former practice. The buffing and drawgear follows standard practice and couplings of the Instanter type have been fitted. The wheels, which are of the solid rolled-steel disc type, 3 ft. 2 in. dia., are mounted on axles with journals 9 in. \times 4½ in. These run in fabricated steel axleboxes with white-metal bearings and loose oil trays.

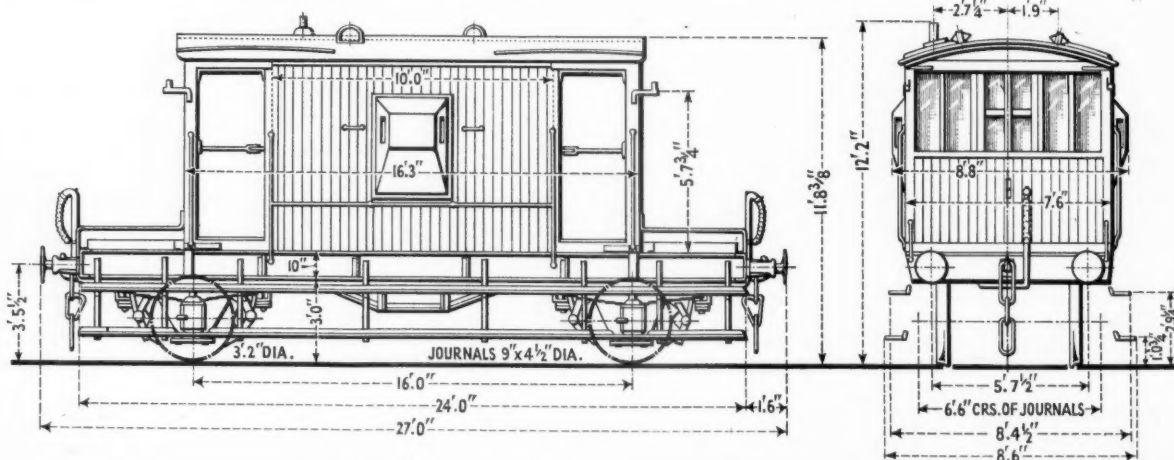
Good Riding at High Speeds

To promote good riding at speeds up to 60 m.p.h. on fitted freight trains, side clearances between axleboxes and guides have been reduced to a minimum and suitable manganese-steel liners are provided to minimise wear at this point. The springing consists of four steel-laminated springs 5 ft. long, each having seven plates 4 in. \times ½ in. and each bearing spring in turn mounted on four indiarubber auxiliary springs, two at each end. The break-gear, of the clasp type, has four cast-iron brake blocks to each wheel.

The principal dimensions of the van are as follow:—

Wheelbase	...	16 ft.
Length over headstock	...	24 ft.
Length over buffers	...	27 ft.
Length over body	...	16 ft. 3 in.
Width over body	...	7 ft. 6 in.
Extreme width	...	8 ft. 8 in.
Height over body	...	11 ft. 8½ in.
Extreme height	...	12 ft. 2 in.

The body, considerably shorter than the underframe, is of sufficient proportions to accommodate the necessary equipment. It is of timber construction, mounted centrally on the underframe, and it consists of a central portion which contains the brake application gear, stove, desk, lockers, and so on, with a covered veranda portion



Principal dimensions of British Railways 20-ton goods brake van

at each end. Much thought and care has been expended over the central portions, not only in providing equipment proved by experience to be essential, but also in its disposition.

Access to the veranda is by means of hinged doors, and a deep duckett or projection is provided at each side to form a lookout. The locker, located immediately below the lookout, has been provided with a cushion for the guard, and the lower portion of the duckett is also padded. Two other items which have claimed special attention have been the improved type of stove with adjacent metal coal bunker and the provision of a small desk which will also hold food. Provision is made for drying clothes by a rail with coat hooks adjacent to the stove.

Interior of British Railways standard goods brake van



WHITE PASS & YUKON CORPORATION LIMITED.—Lists opened on November 1 for an issue by the White Pass & Yukon Corporation Limited of \$2 million 4½ per cent. first debenture stock, 1961-76, and \$1,700,000 of 5 per cent. convertible debenture stock, 1961-76, both debentures being issued at £33 6s. 8d. per \$100 stock.

PERMANENT WAY INSTITUTION IRISH BRANCH.—More than 40 members of the Irish branch of the Permanent Way Institution attended a meeting held at Clones, Co. Monaghan, on October 23. Mr. W. H. C. Stone, District Engineer, G.N.R.(I.), Enniskillen, presided, and Mr. T. A. Carson, Secretary, was also present. A paper on "Permanent Way Tools" was presented by Mr. H. Wogan, G.N.R.(I.), Dublin, and an interesting and informative discussion followed the reading of his paper.

CHEAPER AND MORE WIDESPREAD AIR TRAVEL PREDICTED.—Sir Miles Thomas, President of the International Air Transport Association and Chairman of the British Overseas Airways Corporation, predicted a widespread network of tourist class air travel, starting with the Transatlantic and London-Johannesburg routes next year, when he addressed the annual convention of American Travel Agents in Paris on October 25. He said that airlines in many countries hoped soon to make reduced fare air travel available to the great mass of people and were trying to make it financially possible for them to fly on a two or three-week vacation almost anywhere they liked.

WESTERN REGION TRACK RENEWAL.—Renewal of the road bed by blanketing is being carried out by the Western Region of British Railways on certain sections of line. This will necessitate a complete occupation of the track, together with the closing of the line for certain periods,

chiefly at weekends. The work is being undertaken on the up line at Charfield between Bristol and Birmingham and will be followed by similar work on the down line and on the main line between Stratford-on-Avon and Cheltenham. Opportunity is also being taken to renew the drainage system where necessary during the course of the blanketing operations.

PRESENTATION TO EUSTON HOUSE COMMISSIONAIRE.—Mr. E. A. Bayley, who has held the position of commissionaire at Euston House since it was opened in 1934 as the headquarters of the former L.M.S.R., was presented with a gold watch and cheque from the staff, by Mr. A. E. Hammett, Commercial Superintendent of British Railways, London Midland Region, at Euston on Saturday, October 20, to mark his retirement after 50 years of railway service.

MUREX LIMITED.—Mr. George P. Joseph, Chairman, stated at the annual general meeting of Murex Limited that an increase of over 40 per cent. in the value of sales was largely attributable to the higher selling prices of the products of those raw materials. There had been at the same time a real improvement in the volume of their sales and they had spared no effort to expand exports. The additional profits which had accrued on a rising market were reflected in the substantial increase of over 100 per cent. in the consolidated trading profits for the year. A large part of the profits had been retained in the business to finance additional working capital. Taxation at the higher rates was a heavy burden and tax liabilities on the consolidated profits for the year were nearly £900,000. Since the announcement of the final dividend the Government had made known its proposals for statutory limitation of ordinary dividends. These proposals were a grave injustice to those com-

panies who had conformed with Government wishes by having been conservative in their dividend distributions and who were now being penalised more heavily than those who had not done so.

OLYMPIC GAMES BOOKINGS.—Thos. Cook & Son Limited has opened a special department at the head office in Berkeley Street, London, W.1, to deal with reservations for the Olympic Games in Oslo and Helsinki in 1952. Mr. William C. Vidler, Manager of the Winter Sports Department, is in charge.

LONDON MIDLAND AMATEUR MUSICAL SOCIETY.—Mr. J. W. Watkins, Chief Regional Officer, British Railways, London Midland Region, has accepted the office of President of the London Midland Amateur Musical Society, and Mr. A. E. Hammett, Commercial Superintendent, has become Chairman. Mr. D. H. Millership is now Honorary Secretary, in place of Mr. W. G. Gray, who was Secretary for 22 years before his recent retirement. The next production of the Society will be "Magyar Melody" at the Scala Theatre on February 8 and 9, 1952.

RECORD CROSS-CHANNEL STEAMER TRAFFIC.—An all-time record in cross-Channel traffic is reported by British Railways. During July, August, and September, over 1,300,000 passengers were carried to and from the Continent via Harwich and via the south coast ports, and to and from the Channel Islands, about one-third more than in the same period of 1938. Passengers via Harwich—Hook of Holland numbered 89,698, compared with 47,938 in 1938, by Southern Region Continental services 978,365 (770,640), and by Channel Islands services 238,214 (172,875). In all cases there was an increase over corresponding figures for 1950. The number of motorcars carried was also a record.

Supervisory Control of Overhead Distribution

Advantages obtained by the introduction of remote control equipment on the Swedish State Railways

MORE than 80 per cent. of the traffic on the Swedish State Railways is now electrically hauled, and power is supplied to the 16,000-V. overhead contact line system from the power grid *via* converter stations, which change the frequency from 50 cycles to 16 $\frac{2}{3}$ cycles.

Mr. J. R. S. Lundberg, State Railways Board, Stockholm, recently has given an account of the remote control equipment installed in conjunction with one of these stations for the purpose of facilitating rapid operation of the isolators and breakers which form part of the overhead contact line system, and a summary of his account is given below.

The converter stations are equipped with line breakers which, after automatic tripping, reclose the line circuit tentatively after a lapse of 5, 35, and 215 sec. Should the fault remain, further breaker action is suspended and the control room operator must intervene. The following statistical table gives the average duration of faults on contact lines:—

0—5 sec.	70 per cent. of all faults
5—35 ..	about 15 ..
35—215 ..	10 ..
Persisting faults	5 ..

Location of Faults

The location of faults is directed from the converter station and is, in principle, carried out by sectionalising the contact line network with the isolators at the railway stations; the line breaker is closed by hand as each section is tested. By progressive sectionalising of the line network the fault may ultimately be tracked down to a line section between two stations, or to a marshalling yard.

In stations not equipped with supervisory control the isolators are operated by the traffic staff on request from the converter station by telephone. The method used in fault location will depend on conditions.

In many cases the traffic condition on a line section may be such that traffic can be maintained by some simple measure. Provision should therefore be made for constant supervision of the traffic by the control room staff so that line sections carrying the most important trains may be given priority. Within areas carrying heavy local traffic at certain times of the day, the time at which the fault occurs may have an important bearing on the method of fault location used.

The prevailing power distributor also may play an important part in selecting the method of locating a fault. The area served by the distribution control station may be temporarily limited or extended because of work on the lines or repair of faulty equipment. It is important therefore that the power distribution at any time can be surveyed

on a mimic diagram showing the area fed by the distribution station.

Another important factor in fault location is the knowledge, gained by experience, of sections particularly susceptible to faults or particularly exposed. A carefully maintained statistical record of the faults which have occurred is useful, as it enables the more exposed sections to be switched out rapidly, and also indicates what preventive action might usefully be taken. Available service staff, both linesmen and traffic control staff, is an important factor.

Where the traffic density is high and service interruptions may seriously upset the timetable, supervisory control of the line sectionalising isolators has been found useful. By housing the control station in the converter station it is thus possible to supervise the entire network of contact lines served. Sectionalising and fault location necessitated by service interruptions may be carried out rapidly and accurately; an operation which might otherwise take 10-20 min. to complete under adverse conditions can be carried out in seconds. The remote operation is usually supplemented by automatic indication of that part of the track system where the fault has occurred.

A voltage failure of comparatively short duration may cause a serious traffic delay. This is particularly so with a closely knit timetable where one delay will affect all the other trains, and considerable time may elapse before they are able to run to schedule again.

Supervisory control equipment is also an aid in carrying out normal line-switching operations because of the short time available for such operations on busy lines. Curtailment of the operating time is valuable in that it ensures that these short periods can be efficiently used.

Remote control from the converter station is invariably combined with local electrical operation which may be resorted to in the event of a breakdown in the remote control equipment, or when overhauling the equipment. The desired operations can then be carried out by the traffic control staff by means of a switchboard next to a telephone; there is then no need to enter the marshalling yard to carry out switching operations by hand.

The chief advantages gained with supervisory control are: rapid fault location in the event of service interruptions resulting in less traffic dislocation; normal power switching operations carried out more rapidly; and reduction in linesmen and traffic control staff and more efficient use of staff.

Supervisory control equipment based on the synchronous selector principle

was installed between 1935 and 1940 for the lines served by one of the Swedish State Railways converter stations at Häggvik. Experiences gained with this equipment in service during the next few years justified extension of remote control equipment to other areas. Shortcomings inherent in the design of the equipment had been discovered as regards the operating time required and the method of dividing the equipment into sections.

Register Selector System

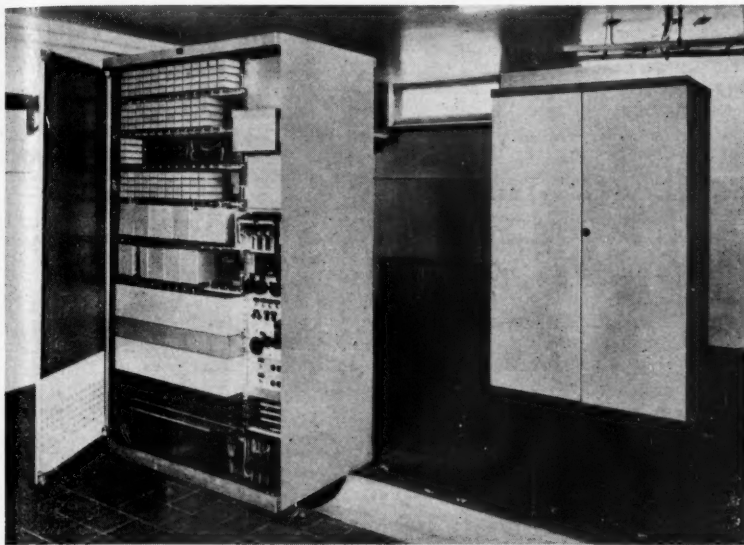
When an installation was planned a new selector system had been devised, known as the register selector system, which was generally applicable to various types of remote control. This system devised by Asea and the L. M. Ericsson Telephone Company in collaboration, embodies the experiences gained both in telephone and power engineering.

The isolators which are to be remotely controlled at each substation have been equipped with motor operating gear, which comprises a series wound d.c. motor for 220 V. 1 A, a worm gear, and the requisite auxiliary contacts and so on. In addition, isolators equipped for over-current indication are also provided with a current transformer 400/0.5 A, 16,000 V. 16 $\frac{2}{3}$ cycles. Isolators to be equipped for position indication, but not actuated by remote control, are only fitted with position contacts.

Multiple operating cables connect the motor operating gear and the position contacts to a local control cubicle, which, with a remote control cubicle, is housed in a remote control room in the railway station. Sometimes it is found inconvenient to house this room in the existing station building, and separate kiosks are used instead, either for the remote control equipment only or combined with a building containing telephone equipment.

The equipment installed in the substation comprises the local control cubicle and a control panel, which together form the power section of the equipment, and the remote control cubicle. The former equipment is tested to 2,000 V. which corresponds to the insulation level for low voltage installations, and is connected directly to the motor operating mechanisms, position contacts, and so on. It is built up of operating relays, rectifiers, and transformers for local power supply. The remote control cubicle contains selector equipment and individual relays, tested to 500 V., which corresponds to the insulation level for 50-V. equipment.

The local control and remote control cubicles are mounted next to each other and interconnected with multicore



Cubicles containing selector equipment installed in the control station. Space has been reserved for further cubicles

cables. This method of dividing up the equipment between two cubicles has been chosen because, among other reasons, it permits the use of standard relays both of telephone type and the type used in power engineering and allows mounting them in a rational manner. Another advantage is that the remote control cubicle may be taken out of service without affecting local control operations. Finally, it also enables the equipment to be extended progressively, using only the local control equipment during the initial stage.

The remote control cubicles in the substations and the control station have been partly redesigned to facilitate replacement of relays and future extensions and alterations. The relays are built into units which can be inserted in the cubicles. Each relay unit consists of a baseplate on which are mounted the relays, capacitors, and resistors, together forming a function unit and which should therefore be adjusted and tested together as a unit.

Each relay unit as well as each selector unit is equipped with multiple contact pins which plug into corresponding

jacks in the shelves when the unit is inserted in the cubicle. Other parts of the equipment have also been combined to form plug-in function units. Each relay unit has a cover to protect the relay contacts from dust. The units are locked in position by retaining screws.

Individual Relay Units

Individual relay units comprise the relays required for one remotely controlled unit, such as an isolator. The number of relays contained in such a unit will therefore depend on the degree of remote control; hence, the relay unit located in a substation for indicating the position of an isolator contains only one relay. For operating and indicating an isolator, three relays are required.

Standard cabling, bunched and whipped on a nail frame, is used for interconnecting the jacks in the cubicle and wiring them to the terminal blocks. The cabling inside the cubicle is so devised that it is possible to extend the number of individual relay units without having to alter the cabling.

By using cubicles planned in this manner the manufacturer has the ad-

vantage of being able to use standardised units in building equipments of various types and stages of development. For the user it has the advantage that when the number of controlled units is to be increased it is only a question of inserting relay units in the appropriate relay seats. Complete relay units are provided as spares for the entire remote control installation.

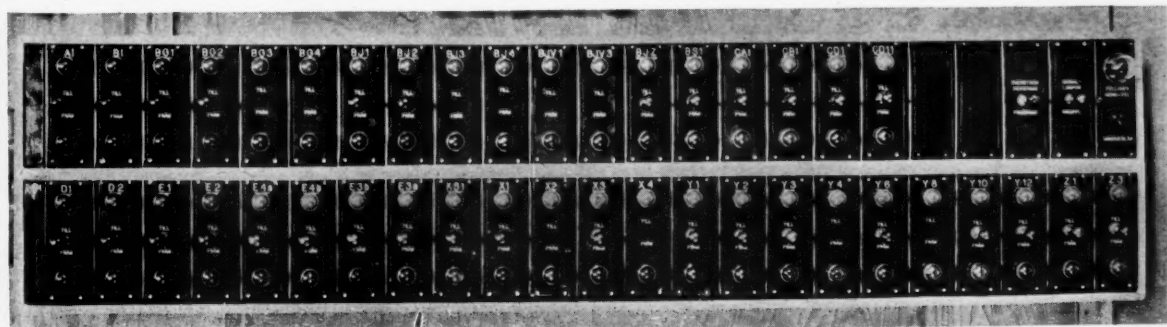
The substations are connected to the selector equipment in the control station by means of two cores in a telephone cable (these cores are not provided with loading coils), consisting of 0.6 or 0.7 mm. copper wire.

The selector equipment in the control station is divided into several systems, so that not more than four or five substations are served by each system. This subdivision into different systems is made partly with reference to the geographical position of the substations and partly according to the number of cores available in the telephone cables. To maintain the selector cubicles at a suitable working temperature, about 20°C., the basement room is provided with heating, usually electric radiators.

The remote control board comprises 13 panels arranged in a wide arc and carries a diagram of the network fed by the station. In this diagram the isolators and circuit breakers contained in the network are represented by rotary type pilot switches and position indicators. The former are used for the remote control of isolators and breakers and the position indicators are used for registering by hand the position of isolators not remotely controlled.

The external appearance of the two types differs only in that the position indicators lack indicating lamps and operating contacts. The pilot switch is of a new design of small dimensions to keep the size of the control board within reasonable bounds. The control board surface is divided into sections (20 in. x 20 in.) to simplify the task of making alterations in the diagram that might become necessary. Changes in the diagram must be regarded as fairly normal because of track alterations which must be made to cope with continually changing traffic requirements.

Supervision and operation of the selector systems also requires common



Local control panel composed of control units. Locking unit with lamp is shown on extreme right

pilot switches and indicator lamps mounted on the control board. For each substation there is a pilot switch to indicate a fault in the control equipment or emergency tripping of the contact line by the substation as well as a pilot switch to indicate blocking of the selector system.

For each selector system there is, in the centre of the board, the following common equipment: one system blocking switch, one lamp to indicate transmitted impulses, and one lamp to indicate received impulses.

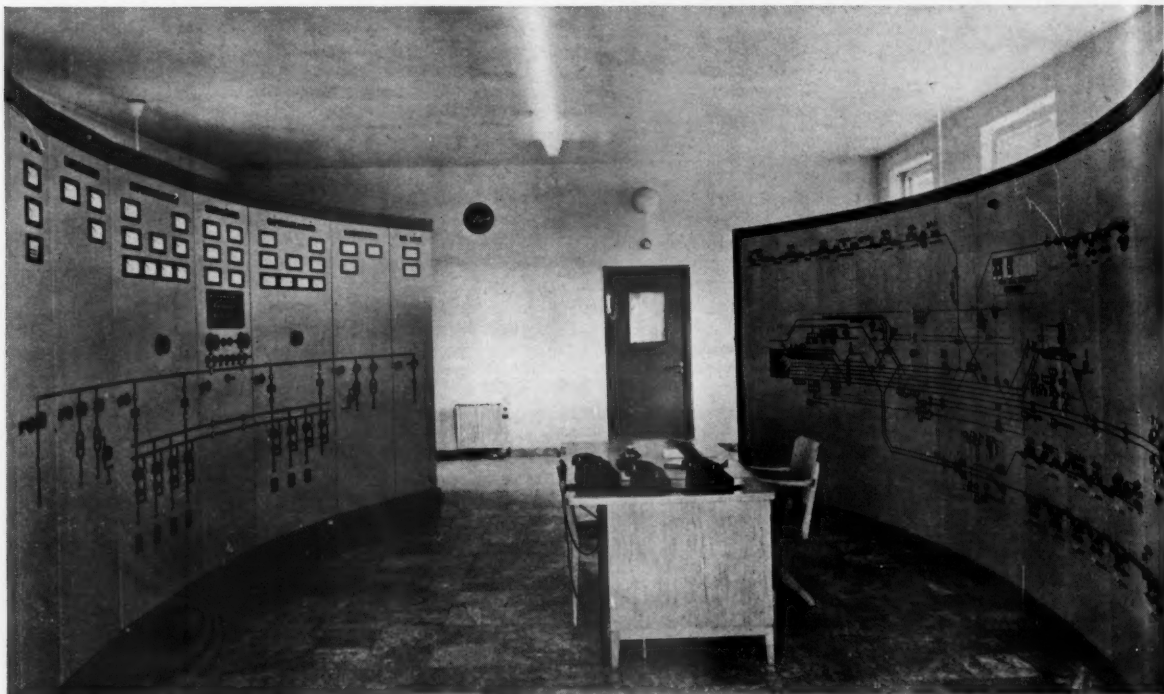
The following are also fitted common to all the selector systems: one tumbler switch for testing the lamps, one tumbler switch for cancelling a control order already given and to prevent the selector

series is found to check with the original transmission is the order put into effect. The wires between the control station and substations are arranged on the duplex principle to curtail the selector operating time and to economise in the number of cores used; with this method impulses can be transmitted simultaneously in both directions. Impulses are transmitted at the rate of 10 per sec. The impulse series comprises prefix signals, group selection signals, unit selection signals, and final signals.

When a remote control operation is to be carried out from the control board, the switch corresponding to the isolator in question is turned clockwise when it is to be closed, and anti-clockwise to open it. This action causes the

positions in the selector (on and off) the maximum number of controlled units covered by one group is 13. As the same type of ball selector is used also for the group selection, the greatest number of groups in a selector system will be 29. This gives a total of about 370 controlled units in one selector system.

When an isolator is operated locally, that is, by an operation not initiated by remote control, this is indicated by the impulse series exchanged between the substation and the control station. The new position indication then appears on the appropriate pilot switch on the control board as a flashing light, and an audible alarm signal is sounded, drawing attention to the fact that one of the



Control room with local control board for converter station on left, and remote control board on right

from starting up when a multiple control operation is to be executed, and one tumbler switch for silencing the audible alarm.

Operation of the Equipment

The register selector system operates in such a way that the selection of a certain controlled unit and the transmission of an order to carry out an operation is effected by impulses, in this case d.c. impulses transmitted in code between the control station and the substation. This code is composed partly of impulses occurring at definite intervals and partly of impulses of different duration.

To ascertain that a transmitted series of impulses has been correctly received, it is repeated to the transmitting station, and only when the repeated impulse

selector to start immediately by transmitting an impulse series which selects the desired operation. If everything is in order the operation is automatically carried out and the new position is indicated on the pilot switch. Selection of an "on" or "off" operation for a certain isolator is effected by prolonging the corresponding impulse in the series.

Each selector system is divided into groups, each covering a contact row on a unit selector. The number of isolators, referred to as controlled units, within each group is determined by the design of the selector. The selectors used in this case are ball selectors which, like the relay sets, are manufactured by the L. M. Ericsson Telephone Company. They have a total of 29 operating positions of which 26 are used for the controlled units. As each unit requires two

isolators has taken up a new position. The only action required is to silence the alarm and acknowledge the indication by turning the pilot switch to the new position.

An earth fault occurring in the contact line network within a marshalling yard section will cause an over-current to flow through the isolator feeding the line section in question. There is usually a current transformer connected in this circuit, with its secondary connected to an instantaneous over-current relay. Because of the rapid action of the line circuit breaker this relay remains energised only for a short period. A hold-in relay is therefore used to maintain the over-current indication, which is transmitted from the substation to the control station.

At the pilot switch for the appro-

appropriate isolator this over-current indication takes the form of a special series of flashes which may readily be distinguished from the type of flashing which denotes change of position of the isolator.

It is then for the operator to decide whether the isolator is to be opened or not, depending on whether the fault is transient or persisting. If the isolator is to be opened, the pilot switch is operated as for an ordinary opening operation. If it is to remain closed, the switch is instead depressed without turning it, causing a resetting impulse to be transmitted to the previously mentioned hold-in relay for over-current indication in the substation. As a result of this operation the flashing signal of the pilot switch also ceases.

Emergency switching of any contact line to avert an impending accident or similar contingency is indicated on the remote control panel. When one of the emergency buttons, mounted at certain points, is depressed it also causes an indication of the emergency action to be transmitted to the control station, where it takes the form of an "over-current signal flash" on the control board fault switch for the sub-station in question.

Checking of Selector Operation

The register selector system is devised to safeguard against faulty operations or indications due to external disturbances. The comprehensive method of safeguarding means that the selector carefully checks all transmitted impulse series. Indicating signals are repeated automatically by the selector if a change in position is not registered at the control station.

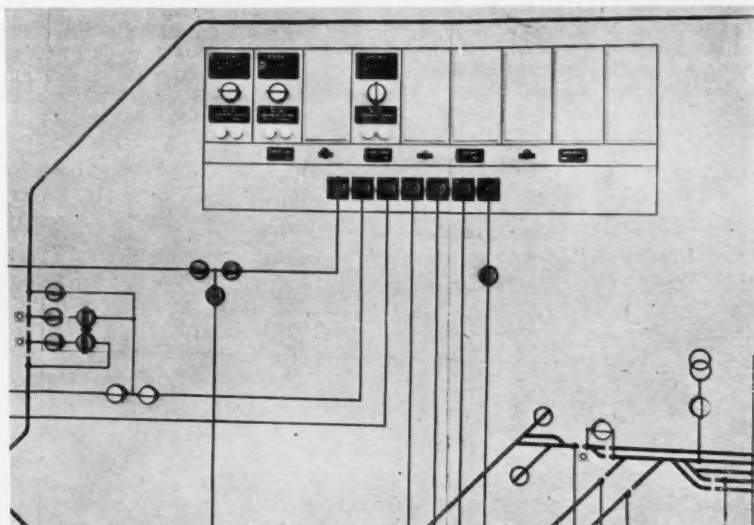
A substation, or an entire system may be made to transmit a check indication of all the controlled unit positions by despatching an order from the control station to this effect. In this way it is possible to check that all units are in serviceable condition; it also enables the selector equipment to be operated now and again so as to prevent formation of dust on the relay contacts, and so on. In the event of a permanent fault arising in the selector equipment, the

corresponding faulty part is disconnected, and the system is so devised that a minimum of the equipment is put out of action. Should the fault be located only in the indicating circuit of one controlled unit, only the corresponding substation equipment is partially blocked.

On the control board the blocked condition is denoted by the pilot switch for the controlled unit in question burning steadily irrespective of the switch position; this is accompanied

flashes intermittently and the audible alarm is sounded. A substation blocked in this manner is unable to carry out any operating order or transmit any indicating signals. The other stations, which are not blocked, remain fully serviceable.

Blocking of an entire selector system is caused by a fault in that part of the selector equipment which is common to all the substations within the system and results in all the pilot switches within that selector system being per-



Section of remote control board containing equipment common to the selector system

by a flashing light from the substation blocking switch and an audible alarm signal. It will still be possible to transmit operating signals from the control station to the partly blocked substation (including the defective part).

Blocking of an entire substation may be caused by faults in the substation or the channel, which do not refer to an individual part of the equipment. In this case all the pilot switches in the substation will be permanently lit, while the substation blocking switch

manently lit. The system blocking switch will then flash intermittently and the audible alarm is sounded. No operations or indications can be carried out within the blocked system. A blocked station may often be put back into service temporarily by transmitting a release order.

A full description of the above equipment appeared in a recent issue of *Asea Journal* to which we are also indebted for the illustrations accompanying this article.

U.S.A. MOTIVE POWER.—The United States railways have put in service nearly 400,000 new wagons and 13,000 new locomotives since the end of the war. Capital expenditures of Class I railways for new locomotives and wagons and other improvements are expected to amount to nearly \$1,500,000,000 in 1951, the greatest amount for any year on record.

SECOND CHICAGO TRADE FAIR.—A Bill has been passed by Congress authorising all exhibits for the second Chicago International Trade Fair to enter the United States free of customs duty. The Fair will be held from March 22 to April 6 next year. More than 40 countries exhibited their products on the last occasion and the Fair drew 25,000 buyers and a public attendance of 250,000. British bookings for

1952 are expected to exceed those of last year both in quantity and variety of products. Mr. A. P. Wales is the British representative of the Fair, and the London office is at 16, Shelton Street, London, W.C.2.

BRITISH EUROPEAN AIRWAYS PROFIT.—Lord Douglas of Kirtleside, Chairman of British European Airways, announced on October 29 that for the first six months of the current financial year B.E.A. made a profit of £243,000. This had been achieved in spite of adverse factors, such as the heavy increase in costs caused by recent wage awards, the introduction of a new class of aircraft from which no appreciable revenue had yet been earned, and a labour dispute which had cost some £150,000. But for these factors the profit

would have been about £500,000. During the half-year more than 750,000 passengers had been carried and £6,500,000 of revenue had been earned. Payment for the carriage of G.P.O. mails had amounted to only £500,000, or 7½ per cent. of the total revenue for the period.

RAILWAY SERVICE CHRISTIAN UNION.—The Railway Service Christian Union is holding its Silver Jubilee Celebration in the London Midland Region Dining Club Hall, Cardington Street, Euston, N.W.1. on Wednesday, November 7. Tea will be served from 5.15 p.m., and at 6.15 p.m. Mr. J. Taylor Thompson, Civil Engineer, London Midland Region, will occupy the chair at an illustrated lecture entitled "One Hundred Miles an Hour by Train," to be given by Mr. Cecil J. Allen.

Mechanised Appliances for Permanent Way Maintenance—1

Maintaining a well-aligned permanent way, with special reference to methods used to save time and overcome staff shortage

THE demonstration of the latest types of mechanised equipment used in the maintenance of British Railways permanent way, which was opened at Marylebone Goods Depot on October 31 by Mr. John Elliot, Chairman of the Railway Executive, was arranged to show how this work is being speeded-up and an attempt made to overcome the staff shortage. It was also intended to show that heavy work on the permanent way is gradually becoming a job for the machine operator rather than the manual labourer and should have stimulated interest in

moving trains, and that the soil or rock underneath the ballast is in fact a foundation in the strictest sense of the word. It is because of the varying effects of weather conditions on this foundation that major works often have to be carried out to ensure that it does not lose its stability.

It will be logical in what follows to consider the various operations the railway staff carry out in the normal course of their duties in order to deal with the various conditions, in a definite sequence. A beginning will be made with those for the foundation on which

To overcome the manpower shortage To use available manpower where most required

To reduce to a minimum speed restrictions after maintenance and relaying work, also the periods during which track has to be out of commission to enable major work to be carried out.

Foundation

Beginning with the foundation, it is a remarkable fact, which perhaps only the geologist fully appreciates, that in the small island in which we live, there are concentrated most of all the species of rock and soil known to science; the density of the railway network is such that the railway engineer can be certain of dealing with a very high proportion of these widely varying materials over the railways of Britain. The stability of these substances is conditioned by the weather to an extent which varies considerably according to the nature of the particular substance. Direct physical obstruction is often caused by the presence of snow and ice, but the percolation of rain into the soil, or rock, which constitutes the foundation, can cause a serious deterioration of its stability. When the great variety of materials the railway engineer has to rely on to support the track is appreciated, it will be realised that there are grounds for thankfulness that the effect of the weather is not greater than it is.

As far as the foundation is concerned, the worst substance in this country is probably clay, but there are varying degrees of sand and silt that are affected by water and which also lose their stability when wet. Where the direct cause of trouble arises from substances of this type, special steps may have to be taken either periodically, or once for all, to neutralise their effect. In this respect the railways of this country are perhaps more heavily penalised than those in many others, as we took the lead in the pioneer work of the early railways. A high proportion of what are today our main and branch lines was laid down to carry loads very much less than anything which is compatible with present day traffic. In consequence, soils which untreated could quite easily carry the loads imposed on them by early locomotives may find it difficult to withstand the greater demands imposed by their descendants.

The first step towards a solution is to provide as much drainage as possible, so that surface water can be quickly removed and so prevented from infiltrating into the sub-soil. Though this is not necessarily a matter of great difficulty where rock or ordinary soil is met with, it raises considerable problems with clay. Rain inevitably percolates through the ballast and once the upper layer of clay becomes wet, it tends to ooze out and block the drains laid



One-ton Frog rammer consolidating layer of stonedust laid over clay formation at New Milton, Southern Region

recruitment for the Civil Engineering Department. The demonstration was held on October 31 and November 1.

This series of articles sets out to give some idea of what is involved in the work of maintaining a well-aligned permanent way, which will provide a quick and comfortable journey for passengers and allow the rapid transit of goods. In the first place, it is necessary to appreciate that the rails and sleepers constitute a form of supporting structure standing on a foundation that has to be steady enough to carry the loads of

the track rests and afterwards there will be a continuation in an upward direction through the ballast and sleepers to the rails. In the process the nature and scope of the problems that arise will be indicated, as well as the methods used to deal with them and the lines of investigation being followed. It is intended to show what is being done to make the greatest possible use of mechanical devices. The main purposes of these devices may be summarised as follows:—

To reduce heavy manual work

alongside the tracks. Thus more water collects and penetrates to a greater depth into the clay. The question of the most effective design of drainage and mechanical equipment for installing it is at present being given considerable attention, as circumstances vary to such an extent as to render it most difficult to lay down any one standard design of drain, which will give satisfactory results in all localities.

Temporary works carried out to alleviate these unstable conditions should gradually become fewer and fewer, as it is realised today that mere alleviation is by no means an economical, or satisfactory solution of the problem and that

supported by fixing rails along the ends, a method resorted to in cases of mining subsidence from time to time.

Permanent Works

Permanent measures have to be regarded as major works, for which considerable preparation is generally necessary. They involve co-operation with several departments, as it is necessary for the length of track concerned to be handed over for the exclusive use of the Civil Engineer for a varying period of time, during which trains have to be diverted to other lines, or routes. The work entails either the removal of the unstable material to a certain depth and

ballast tends to find its way to the side of the track and into the drains in the cess; coupled with this, additional drainage is often laid running under and along the centre of the track and connected to the side drains in the cess by cross drains. The first stage in this operation is to dig out the clay, and for this $\frac{1}{2}$ to $\frac{3}{4}$ yd. standard excavators are generally used, such as are made by Ruston-Bucyrus Limited, Thos. Smith & Sons (Rodley) Ltd., Ransomes & Rapier Limited and other leading firms.

The spoil is loaded into wagons, usually on an adjacent line, and is sent to one of the disposal sites where it is unloaded by means of a truck dis-



Bulldozers spreading spoil unloaded from railway wagons by mechanical pushers at Barry Pond, Western Region

it is in almost every instance better to carry out work to remove the cause of the trouble for as long as circumstances allow. Work designed to give these long-term results can only be carried out at the cost of interrupting or diverting traffic so as to make the site of the trouble accessible, and this has to be done as traffic conditions permit. The result is that the Civil Engineer's activities are in some instances restricted by circumstances over which he can have no control, and for this reason he is compelled to take temporary measures from time to time.

These temporary measures can consist of removing pockets of wet clay at isolated points, filling with cinders, or sand, adding ballast, cleaning drains and putting in extra ones. Where movement is suspected, the sleepers can be

its replacement by material allowing efficient drainage of surface water, or increasing its stability by using piles, cement grouting, or the permeation of fixing solutions.

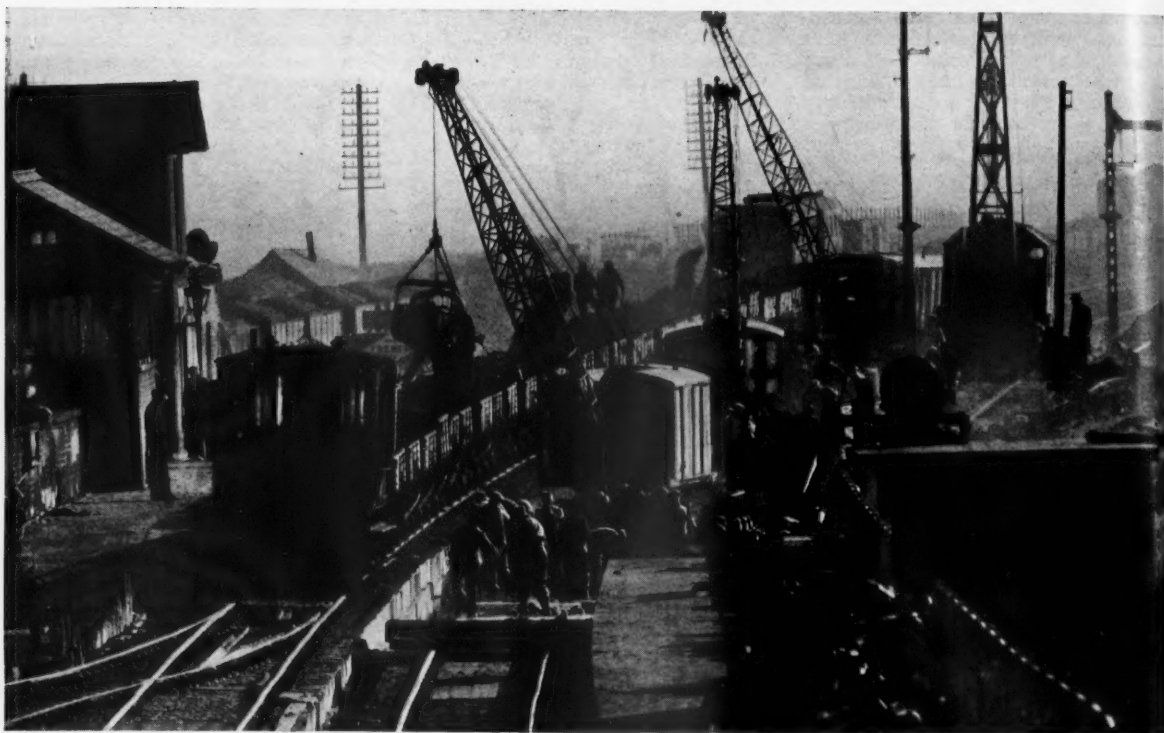
Probably the most usual method that has been used is to dig out the clay underneath the ballast to a depth of between two and four ft., or until stable rock, or soil is reached. After the removal of the clay, the space is filled by sand, cinders, gravel and ballast, which sometimes is placed on top of large slabs of concrete acting as a raft; these miscellaneous fillings are rammed, or compacted, so that their density is increased as much as possible to prevent, or minimise the penetration of water.

The top of each layer is so tapered that water coming down through the

charger. This consists of a special fitting made by William Jones Limited which is attached to a Priestman Wolf crane and consists of a pusher plate moving on a jib beam. The plate is lowered into the wagon and pushes out the contents from the opposite door. If the spoil falling from the wagons is near the edge of the tip it falls down of its own accord; otherwise, angle dozers are used to push it over, or the track is slewed with a track-slewing machine to run along the face, or side of the tip. The track slewer consists of a trolley fitted with a jack; the trolley is fastened to the rails with special grips, and the jack then forces the trolley and rails sideways into the new position.

Although it is usual to use railway wagons for removing material from the
(Continued on page 497)

Mechanised Appliances for Permanent Way Maintenance—1



Permanent way blanketing and drainage at Hougham, near Grantham, showing removal of clay below the ballast



Angle-dozer spreading sand blanketing at Hougham after the excavation of the clay

RAILWAY NEWS SECTION

PERSONAL

Mr. E. R. Battley, Chief of Motive Power & Car Equipment, Canadian National Railways, has retired and has been succeeded by Mr. A. C. Melanson, Works Manager, Point St. Charles.

Mr. Allan S. Quartermaine, C.B.E., M.C., B.Sc., M.I.C.E., who takes office on November 6 as President of the Institution

Bridging Company. In 1926 he was appointed Divisional Engineer at Bristol, and in 1929 returned to Paddington as Assistant Chief Engineer (Permanent Way & Docks). Subsequently, in 1933, he became Assistant Chief Engineer, and in 1938 Deputy Chief Engineer. In 1939, Mr. Quartermaine succeeded Mr. Carmichael as Chief Engineer and continued to hold that position on the Western Region of British Railways. From June, 1940, to

Mr. F. A. Dudge, Assistant to Chief Accountant, Western Region, has been appointed as Senior Assistant to the Chief Accountant, Western Region.

Mr. M. G. R. Smith, M.B.E., B.Sc., M.I.C.E., Assistant Civil Engineer, Western Region, who, as recorded in our September 7 issue, has been appointed Civil Engineer, Western Region, as from November 10, was educated at Clifton College



Mr. Allan Quartermaine

President, Institution of Civil Engineers, 1951-52, who is retiring as Chief Engineer, Western Region



Mr. M. G. R. Smith

Appointed Civil Engineer, Western Region, as from November 10

of Civil Engineers for the session 1951-52, and is retiring as Chief Engineer of British Railways, Western Region, on November 9, is an Honours graduate of London University and a Fellow and Chadwick Scholar of University College. After a period of training in the Hertfordshire County Surveyor's Office and at the Tees Side Bridge & Engineering Works, Middlesbrough, he joined the Great Western Railway at Wolverhampton in 1910. In 1914 he was transferred to Paddington, and in 1915 went to Egypt with the 116th Company, R.E., where he was engaged on railway location in Sinai, and subsequently became New Works Engineer on the Palestine Military Railways. In 1920 Mr. Quartermaine was appointed Assistant Divisional Engineer at Gloucester, and returned to Paddington in 1924 as Assistant to the Joint Chief Engineers. In 1925 he acted as Co-ordinating Officer with the War Office in the formation of the Supplementary Reserve Unit of the Royal Engineers, and commanded the original No. 1

January, 1941, his services were temporarily loaned to the Ministry of Aircraft Production as Director-General of Aircraft Production Factories.

Mr. A. G. Dawson, Assistant Treasurer, Southern Region, has been appointed Treasurer, Eastern and North Eastern Regions.

British Railways, North Eastern Region, announce the appointment of Mr. S. R. Ryder, District Estate Agent, Hull, to District Estate Surveyor, Newcastle, in succession to Mr. P. R. Dashwood.

ENGINEER & RAILWAY STAFF CORPS

The annual dinner of the Engineer & Railway Staff Corps, R.E. (T.A.), was held at the Charing Cross Hotel, London, on October 26. Colonel V. A. M. Robertson, Officer Commanding, presided, and the guests included Lt-General Sir Nevil Brownjohn and Lt-General Sir Euan Miller.

and Bristol University and served a pupilage under two Chief Engineers of the Great Western Railway. After service in the New Works Section he became Acting Resident Engineer in connection with the quadrupling of the line between Olton and Rowington Junction, and returned to Paddington in 1931 as Assistant to the Divisional Engineer. After being appointed to a similar post at Cardiff in 1934 he returned to Paddington in 1939 as Assistant Divisional Engineer. Mr. Smith was appointed Assistant to the Chief Engineer, Paddington, in 1944, and Assistant Engineer (Maintenance) in 1946. After serving as Divisional Engineer, Taunton, in 1947, he again returned to Paddington as Assistant Civil Engineer. For some years Mr. Smith held a commission in the Supplementary Reserve, Royal Engineers in the 152nd Railway Construction Company. Throughout the second world war he carried to a successful conclusion many special works in connection with the railway company's war effort, for which



Mr. G. C. Parslew
Appointed District Motive Power
Superintendent, Kentish Town,
London Midland Region

duties, in an area subject to frequent air raids, and in connection with his post as Bomb Reconnaissance Officer, he was awarded the M.B.E.

Mr. G. C. Parslew, A.M.I.Loco.E., District Motive Power Superintendent, Llandudno Junction, London Midland Region, who, as recorded in our September 14 issue has been appointed District Motive Power Superintendent, Kentish Town, began his railway career at Horwich Works as a premium apprentice in 1930. Three years later he joined the Motive Power Department and served for two years as an improver at Kentish Town and Euston. In 1935 Mr. Parslew was transferred to the Operating Department for further training at Chaddesden Control Office, and later in the Derby Divisional Office; he was appointed Controller on the Power Section in the Derby office in 1936. A year later he became Head Office Draughtsman at Euston. Between 1939-41 he held positions as Running Shed Foreman at Peterborough and Kirkby-in-Ashfield, and in 1941 was appointed Assistant District Locomotive Superintendent, Nottingham; he took up a similar position at Carlisle (Kingmoor) in 1942. Mr. Parslew was transferred as Acting Assistant (Maintenance) to the Divisional Operating Superintendent, Manchester, in 1944 and was confirmed in that position in 1946. Two years later he became District Motive Power Superintendent at Llandudno Junction.

Mr. L. E. Hawkins has been appointed Assistant Civil Engineer (Structures), London Transport Executive, with responsibility for the maintenance of all buildings, bridges, structures and earthworks and for the design and erection of bridge and structural work.

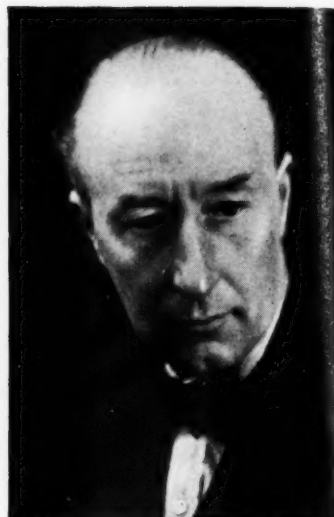
Mr. H. R. Caulfield-Giles, formerly Transport and Traffic Manager to Newton Chambers & Co. Ltd., has been re-elected Chairman of the Traders' Traffic Conference for the twelfth successive year. Mr. W. Ingleson of Cadbury/Fry Joint Transport has been re-elected as Vice-Chairman of the Conference and Mr. A. W. H. Bowler of Clay Cross Co. Ltd. as Honorary Treasurer.



The late Mr. A. W. Bretland
Chief Engineer, Great Southern Railways,
Ireland, 1930-36

We regret to record the death on October 24 of Mr. A. W. Bretland, who was Chief Engineer, Great Southern Railways, Ireland, 1930-36, and received his early training under the Chief Civil Engineer of the Northern Counties Committee. In 1905 he was appointed Assistant to the Chief Engineer of the Midland Great Western Railway and was instrumental in improving and modernising the permanent way of that Railway. He became Chief Engineer in 1918, and it was on this Railway that he invented, perfected and patented a mechanical track-layer, which speeded up the relaying of sections of the line, and resulted in large economies. On the formation of the Great Southern Railways in 1925, Mr. Bretland was appointed Assistant Chief Engineer and at the retirement of Mr. J. F. Sides in 1930, he became Chief Engineer. In addition to his normal duties of renewal and maintenance of the permanent way, buildings and other property of the company, Mr. Bretland, among many other activities, introduced a weed-spraying train. He retired as Chief Engineer in 1936.

Mr. R. C. Rattray, M.B.E., B.A., A.M.I.C.E., Executive Officer, Engineering (Development), Railway Executive, whose death we recorded briefly last week, was educated at Charterhouse and at Cambridge, and held the degree of Bachelor of Arts in Science (with honours). He was a Miller Prizeman of the Institution of Civil Engineers. Mr. Rattray served his pupilage with the Engineering Department, Lancashire & Yorkshire Railway, and later became an assistant on the engineering staff of that company. In 1920 he was appointed Assistant District Engineer for the Guide Bridge District, Great Central Railway, which position he retained after the amalgamation. In 1927 he was appointed District Engineer (Southern District), Scottish Area, L.N.E.R., with headquarters at Carlisle; and in 1937 he was transferred to the Western District, Glasgow, in a similar capacity. He was appointed Assistant to Chief Engineer (Development) in 1943 and became Executive Officer, Engineering (Development), Railway Executive, in 1948. Mr. Rattray served in France from 1915 until 1919,



The late Mr. R. C. Rattray
Executive Officer, Engineering (Development),
Railway Executive,
1948-51

when he retired with the rank of Captain, Royal Engineers; he was mentioned in despatches. He was awarded the M.B.E. in November, 1941, for an action during the Clydeside bombing. The funeral service took place at Golders Green Crematorium on Saturday, October 27, the Rev. L. Grant officiating. In addition to family mourners, those present included:—

British Transport Commission: Mr. H. P. B. Betlem (representing Mr. C. E. R. Sherrington).

Railway Executive: Messrs. J. C. L. Train, R. W. Bailey, J. H. Churchill, D. A. S. Conran, Dr. F. F. Curtis, Messrs. C. H. Dawson, F. G. Dean, H. H. Dyer, H. B. Everard, Dr. H. H. Cavendish Fuller, Messrs. C. C. B. Herbert, T. M. Herbert, H. T. Lathey, W. H. Mills, A. W. Norman, S. E. Parkhouse, J. Ratter, and C. E. Whitworth (representing Mr. J. L. Harrington).

Eastern Region: Messrs. W. Allinson, J. Booth, J. I. Campbell, M. G. Maycock, H. C. Orchard, H. E. Stratton, and A. K. Terris.

Also among those present were: Messrs. F. Lawson and J. Taylor Thompson, London Midland Region; O. Hodgson, Scottish Region; A. S. Quartermaine and M. G. R. Smith, Western Region; P. Croom-Johnson, London Transport Executive.

MR. R. C. RATTRAY—AN APPRECIATION

Mr. J. C. L. Train writes:—

The passing of Mr. R. C. Rattray, M.B.E., A.M.I.C.E., Executive Officer Engineering (Development), Railway Executive, has left all who knew him the poorer. To know him, and especially to know him well, was a pleasure and a privilege, for he was essentially an individualist, with all the surprise and charm of the individualist's approach to life in general and to any and every matter that might arise.

His father was Chief Engineer of the Lancashire & Yorkshire, and it was with that company that he served his pupilage. After service in the 1914-18 war, during which he was mentioned in despatches, he joined the Great Central, and after the amalgamations of 1923 he served the L.N.E.R. as District Engineer at Carlisle and later at Glasgow. In 1943 he came to headquarters, to take up a special appointment under the Chief Engineer, at that

time myself, with responsibility for all development and research for the department.

After nationalisation, when the Chief Engineer's Office of the L.N.E.R. disappeared it was the natural thing that Mr. Rattray should be called on to fill an appointment of a similar nature, but with a much wider field and a greater burden of responsibility; despite what has been said to the contrary those concerned both at the Executive and in the Regions know that during the last three and three-quarter years much has been accomplished in the way of unification and Mr. Rattray played no small part in this achievement. In addition to his other responsibilities he dealt with administrative matters, and to assess, to select and reconcile the differing practices and ways of the former companies without prejudicing the goodwill of all whom the changes affected was a task of particular difficulty and delicacy; for it is one thing to make a choice from among a number of differing practices that have been proved by time and experience, but when the choice lies among trends of future development and ideas for leavening what already exists, tolerance and abilities of a special nature are called for.

Yet this task, and many others, he discharged, faithfully, loyally, diligently and efficiently. He never sought the limelight; he worked behind the scenes, steadfastly and unobtrusively, and was looked on by all as a perfect example of that figure from a bygone generation, the perfect gentleman. The keenest and happiest of fishermen, he brought all his skill and abilities from the pools and shallows to his work, and today those who most mourn his loss know best how truly he laboured and how well he served his department and our railways. Though he has gone, what he has done abides as a sure foundation for others to build on.

Mr. Norman A. Paterson has retired as Assistant Chief Accountant, South African Railways.

Mr. F. N. Wiggins, General Manager of Canadian National Express, has retired.

The British Transport Commission announce the appointment of Mr. Charles Colin Inglis to be Chief Research Officer on the headquarters staff of the Commission, effective from January 1, 1952. Mr. Inglis is at present a Deputy Chief Scientific Officer in the Ministry of Supply, who have consented to release him.

FUNERAL OF MR. F. WELLER

A funeral service for Mr. F. Weller, Chief Officer (Administration), Railway Executive, who died on October 17, was held on Monday, October 22, at Queen's Park Congregational Church, and was followed by cremation at Golders Green. The Rev. John Millar Craig, assisted by the Rev. P. J. Spooner and the Rev. W. A. Cowie, officiated. In addition to family mourners, those present included:—

Sir James Milne.

British Transport Commission: Messrs. S. B. Taylor, E. A. Toneri (representing Mr. C. E. R. Sherrington).

Railway Executive: Messrs. David Blee, E. G. Marsden (also representing Mr. John Elliot), D. F. Gowen (also representing Mr. W. P. Allen), H. Aidley (also representing Mr. H. Adams Clarke), H. R. Barrett, D. S. M. Barrie (also representing Mr. A. J. Pearson), L. W. Conibear, G. E. Curtis, F. G. Dean, A. E. C. Dent, J. T. Drinkwater (also representing Messrs. V. Radford and J. W. J. Webb), H. H. Dyer, A. Endicott, Dr. H. H. Cavendish Fuller, Messrs. A. A. Harrison, J. E. R. Har-

wood, S. S. Hirst, W. J. Jeffries, G. M. Leach (also representing Mr. R. H. Hacker), W. H. Mills, D. Murray, A. W. Norman, S. E. Parkhouse, H. H. Phillips, A. C. B. Pickford, J. R. Pike, E. Pugson, Captain J. D. Reed (also representing Mr. J. L. Harrington), Messrs. W. B. Richards, M. C. K. Richins, J. E. M. Roberts (represented), and W. C. Rutherford.

Western Region: Messrs. K. W. C. Grand, H. G. Bowles, (also representing Mr. A. S. Quartermaine, and Dr. C. T. Newnham), W. G. Canning (also representing Mr. R. Burgoyne), I. G. Carson, J. F. Cole (also representing Mr. Gilbert Matthews), C. R. Dashwood, A. E. Flaxman, H. T. Forth, C. Furber, W. J. Garrod, S. Gray, F. Grundy, E. Havers, H. E. Hedges, H. W. Howard, W. G. Roberts, A. Shoemack, and G. H. Stevens.

Also among those present were: Messrs. H. Wheeler, formerly Assistant to the General Manager, G.W.R.; E. J. Vipond (also representing Mr. E. W. Rostern), Eastern and North Eastern Regions; F. C. Howard (also representing Mr. J. W. Watkins and Mr. E. S. Hunt), A. E. Hammett, London Midland Region; W. H. Corney (also representing Mr. W. H. F. Mepsted), Southern Region; W. H. Vine, London Commercial Service (Goods & Parcels); W. J. Amies (also representing Mr. T. J. Lynch), Railway Clearing House; G. E. Orton, Road Haulage Executive; G. N. Harrison, Hotels Executive.

Government Appointments

The new Government includes the following Ministers:—

Prime Minister and Minister of Defence: Mr. Winston Churchill.

Foreign Secretary: Mr. Anthony Eden.

Lord President of the Council: Lord Woolton.

Lord Privy Seal and Leader of the House of Lords: Lord Salisbury.

Home Secretary and Minister for Welsh Affairs: Sir David Maxwell Fyfe.

Chancellor of the Exchequer: Mr. R. A. Butler.

Secretary for Commonwealth Relations: Lord Ismay.

Minister of Labour & National Service: Sir Walter Monckton.

Colonial Secretary: Mr. Oliver Lyttelton.

Lord High Chancellor of Great Britain: Lord Simonds.

President of the Board of Trade: Mr. Peter Thorneycroft.

Paymaster-General: Lord Cherwell.

Secretary of State for Scotland: Mr. James Stuart.

Minister of Health: Captain H. F. C. Crookshank.

Minister of Housing and Local Government: Mr. Harold Macmillan.

Secretary of State for the Co-ordination of Transport, Fuel & Power: Lord Leathers.

Minister of Transport & Civil Aviation: Mr. J. S. MacLay.

Mechanical Appliances for Permanent Way Maintenance—1

(Concluded from page 494)

site, there are certain situations where dumpers are more suitable; these are motor vehicles fitted with a tipping hopper. In general this equipment is used more for delivering the filling material mentioned previously, and its action of going backwards and forwards helps considerably in the work of compaction.

It was mentioned previously that each layer, as it is laid, has to be given the highest possible density and for this purpose the compaction and ramming

resulting from the travel of the dumpers is followed by the use of special ramming equipment. There are several varieties of machines that can do this and one which has given good results since it became available is the C. H. Johnson (Machinery) Limited, Frog rammer. This machine has a flat base about 2 ft. in dia. and is operated by a power unit that lifts the whole machine a short distance into the air, after which it falls to the ground with a forward movement and repeats this cycle continuously, thus consolidating the fill as it goes. Another machine known as a Vibrosoil compactor similarly has a base of large area that is rapidly vibrated by means of an out-of-balance rotating weight. Experimental work is also being carried out with the use of a vibratory roller made by Stothert & Pitt Limited. This also consists of an out-of-balance rotating weight driven by a petrol unit which gives the entire roller a rapid vibration as it progresses. This machine has a roller with a plain surface, but an alternative method is the use of what is known as the sheep's-foot type of roller. This roller consists of the normal plain roller drums, to each of which are fixed large numbers of cylindrical projections a few in. in length having a compressing effect and give the roller its name.

The foregoing methods rely for the most part on the introduction of a certain proportion of replacement material, which is consolidated in its new position by the application of mechanical means. An alternative approach to the problem consists in strengthening the affected area by driving in piles, or by the use of some comparable method. For this purpose, piles, which are in fact long rods, or girders, of considerable strength, are driven downwards into the troublesome area at predetermined intervals and depths in accordance with a pattern which has been evolved from experience. A variation of this method consists in the forcing into the soil of a weak and wet mixture of concrete known as grout through pipes driven downwards at intervals in a pattern and in much the same way as the piles already described. The grout consolidates and consequently produces the same effect as that achieved by the pre-formed piles. In other cases vertical bores are sunk into the affected area in accordance with a predetermined pattern and these are plugged with consolidated sand. These sand plugs have to a somewhat restricted extent the same effect as the piling, or grouting, and at the same time supply means for the drainage of any percolating water.

For driving in piles the usual pile-driving equipment is used, consisting of a weight raised by power and allowed to drop by gravity on to the top of the pile. Equipment for grouting work consists of a self-contained concrete mixer that can be connected by a pipe to the top of the tubes which have been driven into the foundation; a system of pressure feeding forces the grout along the pipe and down the tube.

(To be continued)

British Transport Commission Statistics (Period No. 9)

Summary of the principal statistics for the four-week period ending September 9

STAFF

	B.T.C. Head Office	British Railways	London Transport	British Road Services (Road Haulage)	Road Passenger (Provincial & Scottish)	Hotels & Catering	Ships & Marine	Inland Waterways	Docks Harbours, Wharves	Railway Clearing House	Commer- cial Adver- tisement	Legal	Films	Total
Number ...	266	601,093	98,665	80,299	61,255	18,508	6,560	4,908	20,048	642	199	300	38	892,781
Inc. or dec.	—	+696	-89	+175	-293	-366	+14	-2	-47	-3	+1	+4	—	+90

BRITISH TRANSPORT COMMISSION TRAFFIC RECEIPTS

	Four weeks (Period No. 9)		Aggregates for 36 weeks	
	1951	1950	1951	1950
	£000	£000	£000	£000
British Railways—				
Passengers	10,471	9,982	77,287	77,568
Parcels, etc., by passenger train ...	2,673	2,504	22,644	20,683
Merchandise	7,396	6,865	65,851	57,957
Minerals	2,766	2,495	24,361	21,819
Coal & coke	7,182	6,197	61,379	51,616
Livestock	178	191	784	926
	30,666	28,234	252,306	230,579
British Railways— C. & D. and other road services	864	781	7,198	6,472
Ships & Vessels	1,525	1,394	8,745	7,990
London Transport—				
Railways	1,249	1,060	11,093	9,839
Buses & coaches	2,737	2,409	23,153	21,443
Trams & trolleybuses	740	800	6,739	7,323
	4,726	4,269	40,985	38,605
British Road Services— Freight charges, etc.	6,046	5,075	51,960	41,351
Road Passenger Transport	4,196	3,633	30,400	27,026
Docks, Harbours & Wharves	1,139	957	9,314	8,103
Inland Waterways	153	120	1,224	1,082
Hotels & Catering	1,414	1,243	11,186	10,029

LONDON TRANSPORT

	Passenger journeys	Inc. or dec. per cent. over 1950	Car miles	Inc. or dec. per cent. over 1950
Railways... ..	000 47,265	+ 2.5	000 17,971	+ 0.9
Buses & coaches	230,269	+ 9.6	26,514	+ 7.9
Trams & trolleybuses	73,503	-15.9	7,426	-12.9
Total	351,037	+ 2.2	51,911	+ 2.0

INLAND WATERWAYS Tonnage of traffic and ton miles

	Tonnage per cent.	Inc. or dec. per cent. over 1950	Ton miles	Inc. or dec. per cent. over 1950
Coal, coke, patent fuel & peat	000 429	+ 0.7	000 6,843	+ 9.6
Liquids in bulk	148	+11.8	3,934	+17.3
General merchandise	333	+16.6	5,435	+16.1
Total	910	+ 7.0	16,212	+13.5

BRITISH RAILWAYS Rolling Stock Position

	Operating stock	Number under repair	Available operating stock	Serviceable stock in 1950
Locomotives	19,316	3,349	15,604	15,908
Coaching vehicles	57,771	4,496	53,275	52,907
Freight wagons... ..	1,109,835	94,479	1,015,356	997,359

BRITISH RAILWAYS Passenger journeys (Month of July, 1951)

Full fares	Monthly returns	Excursions, cheap day, etc.	Other descriptions	Workmen	Season tickets	Total	Inc. or dec. per cent. over 1950
6,987,000	14,266,000	28,623,000	5,332,000	17,526,000	21,603,000	94,337,000	+ 5.8

BRITISH RAILWAYS Freight Tonnage Originating and Estimated Ton-Miles (Period No. 9)

	Minerals	Merchandise	Coal & coke	Livestock	Total	Inc. or dec. per cent. over 1950
Tons originating	000 4,601	000 3,970	000 13,022	000 110	000 21,703	+ 2.6
Ton-miles	368,678	517,856*	797,489	—	1,684,023	+ 2.2

* Includes livestock

BRITISH RAILWAYS (Period No. 9)

	Total steam coaching train-miles	Total electric coaching train-miles	Total freight train-miles	Freight train- miles per train engine-hour	Net ton-miles per total engine-hour	Locomotive coal consumption	
						Total tons	Lb. per engine-mile
1951	16,098,000	3,869,000	10,696,000	8.7	596	1,029,000	59.3
1950	16,376,000	3,855,000	10,768,000	8.7	578	1,038,000	59.0

Railway Freight Rolling Stock

Mr. S. E. Parkhouse's views on the most suitable types of vehicle, and on the fitting of continuous brakes to all stock

A paper recently read by Mr. S. E. Parkhouse, Chief Officer (Operating), the Railway Executive, before the Metropolitan Section of the Institute of Transport, entitled "Railway Freight Rolling Stock," discusses the most suitable types and designs of goods stock (a) for the traffic they are intended to carry, (b) for economical operation, and also (c) for economy in annual charges for interest, renewal, and repair. Under nationalisation and unified working there is greater opportunity for obtaining the ideal stock.

For instance, the different companies built cattle wagons of 8-, 10-, and 12-ton capacity, but as it is impossible to load any type of animal up to a weight of even 8 tons into the cubic capacity of such a wagon, the correct capacity for all cattle wagons is 8 tons. Moreover, the 8-ton vehicle is £5 and £10 lower in first cost than the 10-ton and 12-ton, and on the basis of the present number in service, standardisation of the 8-ton type would secure a saving of over £60,000.

Mr. Parkhouse also points out that great advantages and economies would accrue if the present screw coupling were replaced by the Instantan type on all brake-fitted stock. Objections have been raised against it because it did not give buffer compression and was not satisfactory for attaching to passenger trains. Nevertheless it was in use for 40 years on the former G.W.R., without any detrimental effect on the working. Its advantages are that staff do not have to go between the wagons to couple and uncouple it, it is quicker to operate, and its first cost is less than half that of a screw coupling. If all existing brake-fitted stock had Instantan couplings there would be savings amounting to some £400,000 on renewal and about £20,000 annually in interest and depreciation charges.

Design of Merchandise Stock

In considering the case of ordinary covered and open merchandise wagons, and the small average loads they usually have to carry, the 12-ton van and 13-ton open wagon might be deemed to be unnecessarily large. It is mainly the cubic and not the carrying capacity that is the deciding factor in this particular instance. There appears to be no case for reducing the carrying capacities of these two types, especially as British Railways now have to provide wagons for commodities which load heavily and were previously carried in privately-owned wagons.

Two types of open wagon are in question: (1) all-steel with a wooden floor, and (2) with a steel underframe, corrugated steel ends, and wooden lining, sides and floor. The latter type was formerly favoured by the railway companies, but the report shows that the former is considerably more economical. If the relativity in annual charges on the two types is maintained, there is a potential eventual saving of £1,000,000 a year on the total stock of open merchandise wagons in favour of the all-steel type.

Turning to the important question of coal-wagon capacity, Mr. Parkhouse points out that it has gradually increased in recent years to the present standard of 16 tons. The 1929 report of the Standing Committee on Mineral Transport recommended the development of a 20-ton coal wagon, with the necessary conversion of terminals,

sidings, and appliances to suit it. The Committee considered that wagons of a higher capacity were suitable only for special services. The physical limitations at collieries and terminals to the use of high-capacity wagons still exist, but the elimination of the privately-owned wagon and the nationalisation of coal, gas, and electricity have made the reconsideration of this problem of capacity necessary.

The operating economies and advantages of the high-capacity wagon are: (1) increased ratio of pay-load to tare weight, and consequent reduction in gross load hauled and in train-mileage necessary to carry a given quantity of coal; (2) reduced tare weight for empty haulage and empty train-mileage; (3) reduced over-all length of wagon in relation to load, and reduction in siding, traffic and terminal yard accommodation; (4) reduced surplus wagon stock at periods of sub-normal coal production; (5) reduced tractive resistance; and (6) reduction in shunting movements and in certain other items.

On the other hand, annual charges for interest, renewal, and repair are 40-50 per cent.—a matter of £4,000,000 to £5,000,000 a year—higher for high-capacity wagons than for the 24·5-ton, the largest four-wheel wagon. There is also the necessity to provide for other than manual discharge from the 40- or 50-ton bogie vehicle. Tare weight and production cost, and therefore annual charges, do not increase proportionately with increase in carrying capacity. For instance, the annual charges on a 16-ton wagon are lower than for a 13-ton, and between the 21-ton and 24·5-ton vehicle, the economical advantage is with the latter. The costs of wagons of over 24·5-ton capacity rise disproportionately because of the necessity for bogies and for other than manual discharge.

The conclusion reached, therefore, is that the 24·5-ton vehicle, with its 10·5-ton tare weight, is the ideal coal wagon. Unfortunately, its 10- or 11-ft. height prevents its universal use at present, but its adoption should be regarded as a long-term policy. Meanwhile, the 16-ton coal wagon is the next most suitable, and should continue as the standard type. The same arguments apply in the case of wagons for the conveyance of iron ore.

Continuous Brakes for Goods Stock

Turning to the question of continuous brakes for goods stock, the paper states that at present 55 per cent. of the covered stock, 14 per cent. of the open merchandise stock, and 80 per cent. of the cattle stock are fitted with vacuum brakes. Now that the 650,000 privately-owned wagons no longer rule out the fitting of other stock, it is possible to reconsider the problems involved.

The disadvantages against continuous brakes are claimed to be: (1) delay in marshalling yards due to the necessity for uncoupling and coupling up brake pipes, and the probable need for providing additional roads for this work and for brake testing; (2) shunters would have to go between wagons to carry out these duties; (3) shunting staff might have to be increased by some 10 to 12 per cent. at an additional annual cost of £800,000 or £1,000,000; (4) the estimated cost of fitting all goods vehicles with the vacuum brake is about £31,000,000, and vacuum brake

fittings would also have to be added to some 2,000 locomotives at a further cost of £400,000; (5) approximately 500 testing plants would be required, costing £750,000; and (6) additional shunting would be necessary, as would overhaul every 2½ years.

Furthermore, any reduction in wagon requirements by quicker movement secured by the provision of continuous brakes would be more than offset by non-availability during testing and overhaul, so that additional wagons would be required at an estimated cost of about £2,500,000. Also, additional coal would be consumed in providing steam to work the brakes, possibly costing £300,000 a year. Weight of stock and trains would be increased, and would result in additional mileage and engine-hours.

Advantages of Fitted Stock

In favour of continuous brakes, the first point is that their absence on freight trains necessitates slow timings and undue track-occupation. Moreover, unbraked trains are seriously delayed because of the additional headroom required by faster trains, entailing long waits by freight trains in refuge sidings or loops. Furthermore, the increased line-occupation by slow-moving trains allows less margin of line capacity for recovery. If all trains were braked the standard of freight-train punctuality would be improved.

A reconstruction of the timetable to suit the running of none but fitted freight trains, shows a saving of about 40 per cent. in train-engine running time, and even allowing for the extra time required for these engines to draw out trains on to departure roads for brake-testing, there would still be a saving of from 20 to 30 per cent. This would make possible a reduction of between 1,000 and 1,500 engines. The additional line-capacity secured would also avoid heavy capital expenditure.

There are about 4,000 run-away catch points on British Railways which could be abolished, and the 30 or 40 derailments annually at them, as well as about a dozen collisions after train-partings, might be avoided each year if all stock were brake-fitted. It appears that at least 50 main line accidents occur annually through all causes arising from the absence of continuous brakes.

There are also about 1,000 places on British Railways where wagon brakes have to be pinned down for descending steep gradients. The aggregate time so lost is some 10,000 hr. a week, and the universal fitting of continuous brakes would avoid this loss of time and reduce the number of engine-hours in steam by some 250,000 hr. a year. Due to improved time-keeping there would also be a considerable saving in relief and special-working duties.

An attempt has been made to assess the values of all these pros and cons, and though no exact estimate is claimed, Mr. Parkhouse finds that a result is obtained which may vary from a net annual loss of £1,300,000 to a net annual gain of £1,335,000. There is, therefore, a possible financial justification for the adoption of continuous brakes for all stock, but much trial and research is necessary before a final decision can be made. As a long-term policy towards reliability and general efficiency it may well be in the national interest. Comment on these notes is embodied in an editorial article on page 480.

Passenger Charges Scheme, 1951

Objections by the B.T.C. to through road-rail tickets: and the possible effect of withdrawal of concessional fares

When the inquiry by the Transport Tribunal into the draft Passenger Charges Scheme, 1951, was resumed on October 23, Mr. Hubert Hull, President, asked Sir Malcolm Trustram Eve, K.C., for the B.T.C., how long it would be, assuming that a scheme not differing in principle from the present one was confirmed, before it could be brought wholly into operation.

Sir Trustram Eve, replying, said that, while he would have to get accurate instructions on that point, it was already clear that the scheme could not come into operation as early as January 1, 1952, which was a date that had been mentioned already.

Mr. Desmond Cassidy, for the London Passengers' Association and the National Association of Postal & Telegraph Officers, asked whether the B.T.C. would object to the introduction of a through road-rail ticket, which he suggested would be of convenience to the public.

Mr. Valentine said they had experience of a limited range of these tickets before the war when they were found to be confusing and difficult to deal with. Their introduction would mean that a large variety of tickets would have to be carried on buses, and in issuing them delays would occur, while railway booking clerks could not be expected to know all the bus stops. Nothing was gained by the public unless the ticket was cheaper than the sum total of the separate fares.

Tramway conversions in London were expected to result in a 10 per cent. increase in passenger traffic and all the signs were that at each stage of the conversion there had been quite a stimulus to traffic. While there would be a tendency for the public to change to the cycle and the motor-driven cycle the B.T.C. had allowed for this. The bicycle would be an additional competitor which public transport would have to face.

Asked if there was a major reason why provincial towns could charge lower fares for bus and tram travel Mr. Valentine replied that there were many reasons and these included the higher wages paid in London. If London depended on road transport alone the roads would be choked with traffic and fares would be prohibitively high. For this reason London had had to have expensive tube railways to deal with its traffic.

Cheap Mid-day Fares

Mr. Valentine, asked whether it would be a better proposition commercially to take special steps to attract extra passengers to the tube trains, and especially outside peak hours, said that it depended on what passengers were going to pay. He was not in agreement at present with the idea of special cheap mid-day fares to attract traffic in off-peak hours. A universal single fare for London had not been seriously considered of late, because everybody who had studied this matter, including those who had visited America and seen how it worked there, were satisfied that it would be financially disastrous. It would be discouraging to short-distance traffic and extremely difficult to adopt once another system was established already.

Mr. J. E. M. Roberts Executive Officer (Rates & Charges), Railway Executive, the next witness for the B.T.C., said in evi-

dence that the biggest additional increase would be on season tickets because the number and extent of sub-standard season ticket rates on British Railways was so large. He agreed that the average increase in respect of season tickets was 26 per cent. and in respect of workmen's tickets 21 per cent. The object of the B.T.C. proposal to abolish non-intermediate season tickets was to achieve standardisation of season ticket rates.

Mr. A. Capewell, K.C., submitted that most travellers were glad to be able to dispense with the facility of being able to break their journey in order to get a cheaper rate, and advocated the retention of the non-intermediate as well as the dearer intermediate season tickets.

Mr. Roberts commented that the non-intermediate season tickets were a source of grievance to people who lived in various parts of the country where the facility was not available and they received an increasing number of requests for the issue of this type of season ticket. Maintaining the two types of season ticket would involve loss of considerable revenue.

Monthly Return Fares

On the question of the monthly return fares Mr. Roberts agreed that the public regarded them as an essential feature of railway travel and particularly was this the case since the war. Now the B.T.C. wanted complete discretion to deal with the level of monthly returns to meet circumstances which might arise in the future and which it could not foresee at the present time. He did not think they would get any more revenue by lowering the ordinary or monthly return first class fares and he did not believe that a reduction of first class fares would attract sufficient traffic back from the roads to improve their receipts.

Mr. Roberts, asked by Sir Shirley Worthington Evans, for the Corporation of London, whether a high proportion of first class travel was now undertaken by members of Government Departments or executives, replied that a great proportion was definitely by people engaged in business. He did not think that there were many people, who, even for a less sum, would transfer to the first class, and that an experiment to find out would be costly.

On October 26, Mr. Roberts was questioned by Mr. John Shaw, representing the National Council of Commercial Travellers, about the proposed withdrawal of concessional fares for commercial travellers. Mr. Shaw suggested that the concessions were being "swept away" because the B.T.C. could see no reason why commercial travellers should be a privileged class. Because of its withdrawal a large proportion of commercial travellers would buy cars and their travel would be lost to the railways for all time.

Mr. Roberts replied that, although the B.T.C. hoped it would not lose this traffic, it was not prepared to make concessions in their favour which were not based on sound commercial practice. Neither was it commercially desirable to introduce such a scheme of concessions for disabled ex-servicemen. If such a scheme was created it would be difficult to decide when in all fairness a line could be drawn. A principal reason for not making concessions was

that they were faced with the task of paying their way.

Questioned about the removal of un-economic services, such as the closing of certain branch lines, Mr. Roberts replied that this matter was under constant consideration both as regards costs and receipts. Closing took place where there was a clear case for doing so and every effort was being made to reduce costs by reducing administrative expenditure.

Excursion Facilities

When the inquiry was resumed on Tuesday Mr. Roberts was questioned by Mr. Leon Maclaren, for the L.C.C., regarding excursion facilities.

Mr. Maclaren asked whether the B.T.C. had not found that by giving special facilities on the railways at fares broadly comparable with the road fare it had been able to secure additional revenue.

Mr. Roberts replied that that was the case outside the London area.

Questioned about loss of traffic Mr. Roberts said in spite of their experience that excursion facilities had brought them a considerable yield it was his view that a reduction in long-distance charges would have no corresponding benefit on the long journey. Recent experience in the short-distance field helped to support this view.

Mr. Maclaren: On your monthly returns you are losing your long-distance travel, and it is serious?—I agree we have been losing a good deal of long-distance travel, but the loss has not been as marked recently. It is flattening.

So far as your long-distance travel is concerned, you are facing a very serious resistance, and that resistance will be aggravated by any increase in your long-distance fare?—We are still losing a certain amount of long-distance travel, but nothing like the rate of loss in 1948 and 1949. We expect there will be some further loss in monthly return fares, and we have allowed for that in our estimates.

Replying to a question regarding proposed increases in season ticket rates Mr. Roberts said he did not think there would be any substantial reduction in long-distance season ticket travel. The amount by which season ticket charges over 50 to 80 miles were to be increased varied, and while he knew no passenger would welcome increases in price, the holder had been enjoying concessions which others had not.

Mr. Desmond Cassidy said that before the B.T.C. came into being railway employees received two free vouchers a year, and Mr. Roberts agreed that since nationalisation there had been certain extensions.

Mr. Cassidy suggested that the B.T.C. was thus creating a privileged class.

Mr. Hubert Hull, President of the Tribunal, intervened to say that he would have thought that if these customary concessions were withdrawn, there would certainly be from the people who lost the concessions a contention that the value of the loss ought to be made up in wages and salaries.

Sir Trustram Eve indicated that Mr. Cassidy had raised an important question of policy, which might have to be challenged by evidence.

The inquiry was then adjourned until October 31.

Staff & Labour Matters

Railway Wages and Salaries

The hearing before the Railway Staff National Tribunal of the claim of the three railway trade unions for increased rates of pay was concluded on October 24.

Replying to Mr. W. P. Allen's statement on the many claims with which the Railway Executive had had to deal since nationalisation, Mr. G. B. Thorneycroft, for the T.S.S.A., said that the principal matters under negotiation had arisen from the June 1947 Court of Inquiry, and the discussions at the Board of Conciliation. No major claim on behalf of the salaried staff had been lodged by the T.S.S.A. until the application in July, 1950 for an increase of 7½ per cent.

The estimated annual cost of £1½ million in respect of minor improvements in conditions of service conceded to staff since January, 1948, added Mr. Thorneycroft, was small compared with the number of staff concerned and averaged a little more than 1s. a week. Although much had been done by the Railway Executive in training, education, and welfare, items of this kind were common to all reputable industrial undertakings, and the railways had long lagged badly behind in these matters.

Burden of Interest Payments

As to the estimated B.T.C. deficit of £50 million at December 31 this year, and the additional revenue which it is hoped to secure through increased passenger charges, Mr. Thorneycroft thought the revenue position would improve when integration came about, but doubted whether the railways could pay their way while they had to meet their present burden of £35 million interest on British Transport Stock. He did not advocate repudiation of contractual obligations entered into with the owners of British Transport Stock, but thought the Treasury might take care of at any rate some portion of the interest payments.

Railways Subsidised

Railway employees, he said, felt discouraged when told by the Railway Executive in response to quite reasonable claims that the money was not there. They were just as entitled to adequate payment for the commodity which they provided, as were the manufacturers of the commodities which railways had to purchase at prices which had risen far more than had the rates of pay on the railways. The increased prices often were due in some measure to wages in the manufacturing industries concerned having increased far more than railway rates of pay. Railwaymen were subsidising the industry by putting up with inadequate pay.

In conclusion, Mr. Thorneycroft claimed that he had adduced conclusive evidence that present railway salaries were inadequate to attract and retain the right type of personnel; that figures had been submitted showing that the increase in salaries has been substantially less than the increase in the cost of living since 1939; and that railway salaries were less than in other nationalised industries and public services. The claim for a 10 per cent increase in pay was fully justified.

Rise in Railwaymen's Earnings

Summing up for the Railway Executive, Mr. W. P. Allen, in reply to a previous observation by Mr. J. B. Figgins, pointed out that the weekly earnings of adult males in outside industry as published in the *Ministry of Labour Gazette* were 121s. 4d. in July, 1945, and 160s. 2d.

in April, 1951. The latter figure included the average earnings of 151s. 2d. a week for staff employed in transport and communications, other than British Railways and London Transport. The earnings of railway adult male conciliation staff in March, 1945, were 111s. 5d. a week, and in April, 1951, 152s. 10d. a week. The increase in outside industries comparing 1951 with 1945 was 32 per cent., and in the case of railway adult male conciliation staff, 37·2 per cent. The earnings of staff on minimum rates on the railways, excluding lengthmen and relayers, averaged 132s. 5d. in April, 1951, while the earnings of lengthmen and relayers were 140s. 11d. a week.

The Chairman of the Tribunal, Sir John Forster, in closing the proceedings, expressed appreciation to all concerned of the spirit in which the inquiry had been conducted.

Catering Wages

A wages regulation order entitled "The Wages Regulation (Licensed Residential Establishments and Licensed Restaurant) (Amendment) Order, 1951 (S.I. 1951 No. 1845)" was made before the change of Government, by the Minister of Labour & National Service, Mr. Alfred Robens, giving effect to proposals submitted to him by the Licensed Residential Establishment & Licensed Restaurant Wages Boards.

The order awards weekly increases for adult resident workers of 7s. 6d. for men and 5s. for women, and for adult non-resident workers, of 10s. for men and 7s. 6d. for women. The new minimum rates for the lowest paid workers aged 21 years and over, not provided with meals or board and lodging, will range from 100s. to 105s. for men and from 75s. to 80s. for women, per week of 48 hr.

The new order comes into operation on November 5, 1951; it affects the hotel and refreshment room staffs of the Hotels Executive, but not restaurant or buffet car staff.

Gloucester Railway Carriage & Wagon Co. Ltd.

The annual general meeting of the Gloucester Railway Carriage & Wagon Co. Ltd. was held in London on October 24. Sir Leslie Boyce, Chairman & Managing Director, presided, and in dealing with the accounts of the company for the year ended May 31, said that the trading profit of the group reached the record figure of £361,866 against £333,329 for the previous year. Taxation, which absorbed 11s. 3d. compared with 10s. 7d. in the £ in the previous twelve months, accounted for £186,890, leaving a net profit of £154,356, against £142,403.

After deducting the proportion belonging to outside shareholders of the subsidiaries the profits attributable to the parent company were £141,372 as compared with £131,764. After providing for an interim and a final dividend, both of 4½d. per 10s. unit, less income tax, and for the transfer of £62,000 to general reserve, the carry-forward showed an increase from £22,956 to £24,575.

It would be seen, therefore, that despite the difficulties in obtaining sufficient materials to maintain full production in all departments of their works, the company had completed another very successful year. Their output, especially of wagons, would have been considerably larger had it not been for the shortage of steel caused by the demands of the rearmament programme. They had every hope that, with

the reintroduction of the control of materials in December their position would be materially improved.

During the past twelve months competition had become increasingly keen, both at home and abroad, and the company had derived great benefit from the replanning and modernising of the works during the recent post-war years. This had materially increased their productive capacity and competitive power, and had enabled them to secure a reasonable proportion of the orders placed with the industry. The present state of their order book was very satisfactory indeed.

Last year he reported that the company had acquired the whole of the share capital of William Gardner & Sons (Gloucester) Ltd. This subsidiary had just completed an exceptionally successful year. During the year they had also acquired the remaining shareholding in the Gloucester Foundry Limited. The demand for the high quality malleable castings of that foundry had for a considerable time been far in excess of its productive capacity. To meet this demand the malleable department was being completely reorganised and mechanised and electric annealing ovens were in the process of being installed. Hatherley Works Limited was proving a valuable adjunct to the group.

Their associated company Wagon Repairs Limited had completed another satisfactory year during which further steps had been successfully taken to broaden the basis of its activities. Their other associated company, Philblack Limited, which manufactures carbon black under licence from the Phillips Petroleum Company in the U.S.A., had, during the past few months, brought into production at Avonmouth the largest plant of its kind in the British Commonwealth, and the most modern in the world, with an output capacity of 50,000,000 lb. a year.

The report and accounts were adopted and the dividend was approved.

International Part-Load Tariff

The autumn meeting of the sub-committee of the Second (Goods Traffic) Committee of the International Union of Railways, which was held in Trier on September 25-29, was attended by representatives from Austria, Belgium, Denmark, France, Germany, Great Britain, Italy, Yugoslavia, the Netherlands, Sweden, and Switzerland.

The agenda included proposals to be made to the next Revision Conference of the C.I.M. and the possibility of establishing an international part-load tariff for Europe as a whole. So many practical difficulties were, however, revealed during the discussion on this latter question that it was decided to establish, in the first place, whether there could be any measure of agreement in regard to the introduction of such a tariff, and then, provided such agreement were received, to appoint a working party to examine the possibilities of the introduction of such a tariff between a restricted number of countries only.

C.P.R. BOND ISSUE.—A \$30 million bond issue, convertible into ordinary stocks, is being made by the Canadian Pacific Railway. The new issue takes the form of 15-year 3½ per cent. collateral trust bonds, to mature on October 1, 1966, and they are being offered by a large syndicate of Canadian investment dealers. The bonds are being offered at par and accrued interest and will yield about 3½ per cent.

Contracts & Tenders

As part of its 1952 programme the Railway Executive has placed the following contracts:—

Birmingham Railway Carriage & Wagon Co. Ltd.: 100 third class all-steel carriages.
Cravens Railway Carriage & Wagon Co. Ltd.: 45 third class all-steel carriages.

The Swedish State Railways has placed the following contracts for six-wheel goods wagons. Type "MAS," for its standard gauge lines:—

S.A. des Ateliers de Construction de Familiaux, Belgium: 250.
S.A. Linkehofmann-Busch, Germany: 125.
Waggonfabrik Talbot, A.G., Germany: 250.
Vereinigete Westdeutsche Waggonfabriken A.G. Germany: 125.

The Spanish National Railways recently ordered 20 combination freight and passenger electric locomotives and substation equipment from the Westinghouse Electric International Company. The equipment is for use on the section between Manzanares and Cordoba in central Spain, and will be purchased with dollars from the \$7.5 million credit supplied to Spain by the Export-Import Bank for railway electrification and modernisation.

As well as apparatus for seven 2,000 kW. substations, Westinghouse will supply electric traction equipment, trucks and air brakes for the 120-metric-ton locomotives, each of which will have six 500-h.p. motors mounted on three two-axle trucks. Because the Spanish National Railways need to conserve dollars, Westinghouse has signed a subcontract with Sociedad Espanola de Construcción Naval for the production of mechanical parts and assembly of the locomotives at the Spanish company's Bilbao works. Westinghouse will also supply Naval with certain raw materials.

The current project is part of a nationwide programme involving electrification of key sections wherever grade, curve and traffic problems indicate advantages over

steam operation. Deliveries from the Westinghouse works at East Pittsburgh and Sharon, Pennsylvania, are expected to be complete by the middle of 1953, and the completed locomotives are to be delivered early in 1954.

The Special Register Information Service of the Board of Trade Commercial Relations & Export Department stated recently that the United Kingdom Trade Commissioner at Melbourne has reported that calls for tender have been issued by the South Australian Railways as follows:—

The manufacture, supply and delivery of 200 bogie open wagons, Class "O," 5 ft. 3 in. gauge. (Specification No. 4639.)

The design, manufacture, supply and delivery of 50 four-wheel refrigerator vans, 5 ft. 3 in. gauge, Class "R." (Specification No. 4641.)

Tenders should reach the Secretary, Railway Commissioner's Office, Adelaide, by noon on December 18 for the bogie open wagons and by noon on December 20 for the refrigerator vans.

A copy of the specification is available for inspection by representatives of United Kingdom manufacturers at the Board of Trade Commercial Relations & Exports Department. It is understood that copies of the specifications are also obtainable from the Office of the Agent-General for South Australia, London, W.1.

Notes and News

Peruvian Corporation Limited.—Applications are invited for the posts of accountants, between 25 and 30 years of age, required for British-owned railways operating in South America. See Official Notices on page 503.

Sales Order Clerk Required.—Applications are invited for the post of sales order clerk, with railway experience and training, required by a firm manufacturing

locomotive accessories. See Official Notices on page 503.

Sailing Tickets for Ireland.—The London Midland Region of British Railways announces that sailing tickets will be required by passengers travelling to Ireland by the Holyhead-Dun Laoghaire route between December 21 and 24 inclusive.

Temporary Closing of Hull Paragon Station.—Because of the relaying of intersecting track which cuts across all the approach lines to the platforms Hull Paragon Station in the North Eastern Region was closed last weekend and will be closed again from November 10-11.

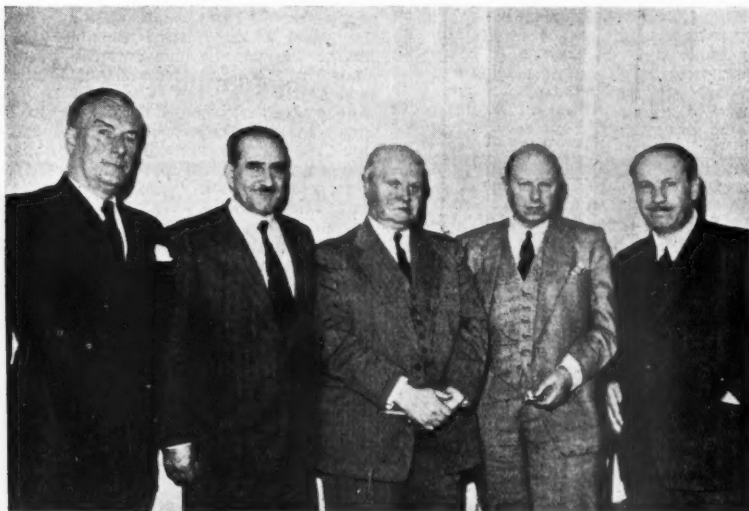
Great Northern Railway (Ireland) Garden Competition.—First prize for the best kept of the larger stations on the Great Northern Railway (Ireland) has been awarded to Banbridge, Co. Down, and consolation prizes were awarded to Monaghan and Dungannon. Ballyhaise, Co. Cavan, was awarded first prize in the southern area, and the winners in the western and northern areas were Dromore Road, Co. Tyrone, and Hillsboro', Co. Down.

Commonwealth Diesel Locomotives.—Fourteen diesel-electric locomotives of 955 b.h.p. and 3 ft. 6 in. gauge ordered by the Australian Commonwealth Government Railways from the Birmingham Railway Carriage & Wagon Co. Ltd. and Sulzer Brothers are to be of the A1A-A1A wheel arrangement with a maximum axle-load of 10 tons and a total service weight of 60 tons. Top service speed is to be 45 m.p.h. and maximum tractive effort 26,800 lb. The locomotives are to have single-end drive and a length over headstocks of 41 ft. 10 in. The bogie suspension is to be fully compensated and the bogie frames completely fabricated. The oil-engine is to be of the Sulzer 6LDA28 type pressure-charged with Sulzer equipment. Multiple-unit control is to be incorporated. The above order was referred to in Contracts & Tenders in our August 24 issue.

Mr. Elliot's Pledge to Government.—Mr. John Elliot, Chairman of the Railway Executive, said, during a tour of motive power depots and yards in the Midlands this week, "We shall work as hard for this Government as we did for the last, and that is saying something. British Railways is a great national service with a tremendous task. We are moving more freight and doing more business, £1,000,000 a day, than before the war, with fewer staff and fewer locomotives. We are able to do it because of more efficient organisation. We shall do our utmost, the management and, I am sure, the men also, to continue to serve the nation as a whole. Politics are not our affair. We have got a major job to do this winter, and if we do not get a lot of sickness and really bad weather, we shall come through."

Accident Injury: Pension Not Part of Damages.—The Court of Appeal recently dismissed with costs an appeal by the Railway Executive against the amount of damages awarded by a Judge of the King's Bench Division to a passenger seriously injured in the Winsford collision in April, 1948, who as a result was invalided out of the Navy and received a pension. The Executive contended that the lower court should have taken the amount of the pension into account. The presiding Lord of Appeal said that a Service pension should be treated as an insurance policy; to allow it to be set off against damages would

Meeting of Railway Managers in Luxembourg



Left to right: Messrs. F. Q. den Hollander (Netherlands Railways), Louis Armand (French National Railways), F. Delory (Belgian National Railways), John Elliot (Chairman, Railway Executive), and J. P. Musquar (Luxembourg Railways) (see news paragraph in October 5 issue)

OFFICIAL NOTICES

PERUVIAN CORPORATION LIMITED: Required for British-owned Railways in South America. Accountants aged 25-30. Knowledge of railway accountancy and of Spanish advantageous; experience of staff management an advantage, three years' contract, renewable, liberal leave, passage paid. Salary up to £1,000 per annum. Apply to the Secretary, PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

RAILWAY CONTRACTORS have vacancy for thoroughly experienced travelling Supervisor to take charge of permanent way maintenance contracts, in Southern England. Thorough knowledge of trackwork essential and possible permanency for the right man. Applications in confidence, giving age, full details of experience, testimonials, and salary required to Box 252, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

JUNIOR TRAFFIC OFFICIALS with railway traffic apprenticeship experience. Age about 25, single, required for service on railways in Peru and Bolivia. Apply to the Secretary of the PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

SMART young man with railway experience and training required for position as Sales Order Clerk with firm manufacturing locomotive accessories. South Manchester. State age, details of experience, and salary required.—Box 260, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

COMPANY manufacturing diesel electric locomotives will accept applications for the following staff:—Design Engineers and Design Draughtsmen. Highly specialised in electrical and mechanical design and manufacturing procedure of d.c. traction generators, traction motors and control equipment. Also Draughtsmen experienced on similar work. Good salaries paid to men of first class experience. Three years agreement. Every facility to find suitable accommodation will be given. Offers only to first class men.—Box 245, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

INTERNATIONAL RAILWAY ASSOCIATIONS. Notes on the work of the various associations concerned with International traffic, principally on the European Continent. 2s. By post 2s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

FOR SALE: Kendall & Gent Plano-miller. Capacity 12 ft. x 6 ft. x 6 ft., drive by 25-h.p. motor through gearbox, voltage 400/3/50. Can be seen working. Cheap for quick sales.—Box 255, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

WE buy used or unserviceable Steel Files at good prices, in lots of 2 cwt. or more.—Thos. W. WARD LTD., R.S. Department, Albion Works, Sheffield.

GLOSSARY OF WOOD. A technical dictionary for all associated with timber and its uses. Ten thousand terms about timber—the common and the little known, the old and the new. Ten thousand definitions covering the entire field of timber and its uses—growth, marketing, utilisation. The commercial timbers, their qualities and uses, tools and wood-working equipment, are all here explained simply, concisely and accurately. Illustrated by many clear line drawings. Price 21s. net. By post 21s. 9d. Tothill Press Limited, 33, Tothill Street, London, S.W.1.

permit a wrongdoer to appropriate the benefit of the party whom he had injured. The opposite conclusion would put the Minister of Pensions into an impossible position, as he would wish not to lay on the taxpayer the burden which should fall on the wrongdoer, and yet not to impose on the injured party a double deduction, both in damages and in pension.

Traders' Traffic Conference.—The 1952 Spring Congress of the Traders' Traffic Conference will be held in Edinburgh on May 12, 13 and 14. The Lord Provost intends to be present at the Conference dinner, which is to be held at the North British Hotel on the evening of May 13.

Western Region, London Lecture & Debating Society.—Mr. R. G. Henbest, Estate & Rating Surveyor, Western Region, will read a paper on "Town Planning as it Affects the Western Region," at a meeting of the Western Region, London Lecture & Debating Society, to be held at 5.45 p.m. on November 15 at the Clerks Dining Club, Bishops Bridge Road, Paddington, W.2.

Railway Benevolent Institution.—At its meeting on October 24 the board of the Railway Benevolent Institution granted annuities to 12 widows and 16 members involving an additional liability of £440 5s. a year; 59 gratuities were also granted amounting to £523 9s. to meet cases of immediate necessity. Grants made from the casualty fund during September amounted to £443 15s.

Scottish Region Centralised Accounts Office at Edinburgh.—A centralised accounts office has been formed by the Scottish Region of British Railways for the Edinburgh area. The new office is at Edinburgh Princes Street Station and its function embraces the accountancy work previously performed at 16 goods stations. The accountancy work in respect of certain goods stations in the district previously concentrated on Lothian Road, Leith North, Leith Walk, and South Leith stations, is included in the new scheme. The office was opened on November 1.

Thornycroft Old Pupils' Association.—The fourth annual dinner of the Thornycroft Old Pupils' Association was held at the Transportation Club, London, S.W.1, on October 26. Sir John E. Thornycroft, Chairman & Governing Director, John I. Thornycroft & Co. Ltd., presided over a gathering of 50 old pupils from all parts of the world, many having journeyed considerable distances to attend. The guest of the evening was Sir W. A. Stanier. Past-

President of the Institution of Mechanical Engineers. After the annual general meeting Mr. G. E. Godfrey was unanimously elected Chairman of the Association for a further year of office.

Engineers' Guild, Metropolitan Branch.—At a meeting of the Engineers' Guild, Metropolitan Branch, to be held at the Lighting Services Bureau, 2, Savoy Hill, W.C.2, on November 8 from 6 to 8 p.m., Mr. C. V. H. Garnett will give an address on "Is Engineering a Profession?"

Special Trains for League Cup Final.—Six special trains brought Dundee supporters to Glasgow for the League Cup Final between Rangers and Dundee at Hampden Park on October 27. Also a special service of trains operated between Glasgow Central and Mount Florida every few minutes from 12.50 p.m. until 2.15 p.m. and returning from Mount Florida immediately after the match.

Western Region Branch Lines Closed.—As from October 29 rail services between Wells Priory Road and Glastonbury, and between Highbridge and Burnham-on-Sea, Somerset, have been permanently withdrawn by the Western Region on the ground of economy. Six trains ran daily in each direction between Wells and Glastonbury and eight in each direction between Highbridge and Burnham-on-Sea. A bus service is operated between these towns.

Swedish Lloyd Sailings.—Until December 31, sailings of Swedish Lloyd vessels from Tilbury and Gothenburg are twice weekly, eastbound on Wednesdays and Saturdays, and westbound on Tuesdays and Saturdays, except for certain cancellations at Christmas. From January 1 to March 31, 1952, eastbound sailings will be on Tuesdays and Saturdays, and westbound on Wednesdays and Saturdays. The boat train leaves St. Pancras for Tilbury at 3.55 p.m.

Wage Increases.—The Ministry of Labour reports that the weekly wages of 9,230,500 workpeople rose by £3,983,000 in the first nine months of this year, compared with a rise of £603,000 for 3,278,500 persons in the corresponding period of 1950. In the "Transport & Communication" group, 1,323,500 persons are shown in the *Ministry of Labour Gazette* as receiving a weekly increase of £600,500 in January-September, 1951. The total increases for all groups ranged from £717,000 for March, to £213,000, for May; the figure for January, which would include railway wage increases made retrospective, was £564,000. The index of weekly wage rates,

based on June, 1947 (as 100), was 121 at the end of September, compared with 120 the previous month. On September 18, the interim index of retail prices, based on June 17, 1947, was 128, compared with 127 on August 14 and 114 on September 12, 1950. Between January and September 307,000 workers lost 1,444,000 working days in 1,318 stoppages. Seven thousand of the days were lost through stoppages begun towards the end of 1950. In the comparable period last year 245,300 workers lost 1,045,000 working days in 1,049 stoppages.

L.M.R. Dramatic Society.—British Railways, London Midland Region, Dramatic Society is to present the play "Murder at the Vicarage," by Agatha Christie, at the Rudolf Steiner Theatre on November 15, 16 and 17.

Election Results Broadcast in Trains.—The results of the General Election were broadcast on October 26, as they were received from the B.B.C., over the loudspeaker equipment in the all-Pullman "Golden Arrow" and "Bournemouth Belle" trains in the Southern Region of British Railways.

Handling of Coal Wagons During Foggy Weather.—In the period ended October 17, there were no fewer than 18 consecutive nights of fog, but, despite the difficulties encountered, no collieries were stopped by shortage of wagons. The Railway Executive has conveyed to the staff of British Railways, through the Chief Regional Officers, its appreciation of the efforts of the staff by which this severe handicap had been overcome.

Institution of Civil Engineers.—At a meeting of the Institution of Civil Engineers, Great George Street, Westminster, S.W.1, at 5.30 p.m. on November 13, there will be a discussion on "Economy in Railway Civil Engineering." Introductory notes will be presented by Mr. G. C. Stevens on "Economy through Labour Productivity and Incentive Schemes," Mr. J. Taylor Thompson on "Economy through Organisation," Mr. A. K. Terris on "Economy by Supervision," Mr. P. S. A. Berridge on "Economy through Design."

Railway Mayors Entertained at Luncheon.—Four members of the London Midland Region of British Railways staff who were elected Mayors for the coming year lunched with Mr. J. W. Watkins, Chief Regional Officer, L.M.R., at Euston Hotel, London, on October 21. Other officers of the Region were also present. The four Mayors are Clerk J. A. Madeley, Mayor

of Crewe; Lengthman F. Fielden, Mayor of Todmorden; Goods Guard H. Barks, Lord Mayor of Stoke-on-Trent; and Clerk B. V. Hughes, Mayor of Conway.

British Railways Coal and Steel Carrying.—British Railways made the biggest week-end clearance of coal for five months during the 48 hours to 6 a.m. on October 29. The total conveyed from deep-mined pits and opencast sites was 393,550 tons, making 3,182,320 tons for the week. The latest figures for iron and steel, which are the highest since June, show that 208,495 tons were conveyed during the week ended October 20 from the principal steelworks.

Forthcoming Meetings

November 2 (Fri.).—Scottish Society of Students of the Locomotive, at 302, Buchanan Street, Glasgow, at 7.30 p.m. "On Highways & Byways of the French Railways, 1951," by Mr. David L. Smith.

November 3 (Sat.).—Stephenson Locomotive Society. Annual Dinner at the Temple Room, Imperial Hotel, Birmingham, at 7 for 7.30 p.m.

November 5 (Mon.).—Institute of Transport, Metropolitan Section, at 80, Portland Place, W.1, at 5.30 for 6 p.m. "Passenger Transport in Athens," by Mr. G. F. Sinclair.

November 5 (Mon.).—Historical Model Railway Society, at the Headquarters of the Stephenson Locomotive Society, 32, Russell Road, W.14, at 7 p.m. "Caledonian Locomotives," by Mr. A. B. McLeod.

November 5 (Mon.) to 10 (Sat.).—International Goods Train Timetable Conference. Autumn session in Vienna.

November 6 (Tue.).—Institution of Civil Engineers, Great George Street, Westminster, S.W.1, at 5.30 p.m. Presidential Address by Mr. A. S. Quartermaine.

November 6 (Tue.).—Institute of Traffic Administration, London Centre, at the Kingsley Hotel, Bloomsbury Way, W.C.1, at 7.15 p.m. Discussion: "Integration of Inland Transport."

November 6 (Tue.).—Permanent Way Institution, Leeds Section, visit to Leeds City Police Emergency Operations Control Centre, and Leeds G.P.O. Telephone Exchange.

November 7 (Wed.).—Institution of Railway Signal Engineers, at the Institution of Electrical Engineers, Savoy Place, London, W.C.2, at 6 p.m. Informal discussion: "Dual Maintenance," by Mr. H. O. Baldwin.

November 7 (Wed.).—Railway Service Christian Union, Silver Jubilee Celebration in the London Midland Region Dining Club, Cardington Street, Euston, N.W.1, at 5.15 for 6.15 p.m.

November 8 (Thu.).—Engineers' Guild, Metropolitan Branch, at the Lighting Services Bureau, 2, Savoy Hill, W.C.2, at 6 p.m. "Is Engineering a Profession?", by Mr. C. V. H. Garnett.

November 8 (Thu.).—Institute of Transport, South Wales & Monmouthshire Section, at the South Wales Institute of Engineers, Cardiff, at 7.15 p.m. "Transport in Perspective," by Mr. M. A. Cameron.

November 8 (Thu.).—Institute of Transport, York Graduate & Student Society, at the Railway Offices, York, at 7.30 p.m. "Transport in Italy," by Mr. R. A. Savill.

Railway Stock Market

Caution has prevailed in stock markets and in nearly all sections values have receded owing to profit-taking after the Election result. This was in accordance with expectations and had already been discounted in markets by the uptrend of prices in recent weeks. The City is confident that dividend limitation will be abolished, but realises that the new Government is committed to introduce a new form of E.P.T.

Such a tax, it is pointed out, would hit increased profits and therefore affect mainly rearmament companies; while it would have the effect of preventing higher dividends, it would be unlikely to make for reduced payments to shareholders. There is a tendency to await a policy statement by the Government, and news whether excess profits tax is to be introduced now or left until the next Budget.

British Funds eased after their recent improvement; but the prevailing view is that they are more likely to rise than fall in the near future because of the greater confidence arising from the new Government. There is renewed talk of higher money rates; but this, it is thought, may not develop till next year, and is unlikely to be encouraged by the authorities if it is believed that a big rearmament loan has to be floated in due course. International securities have receded with the general market trend this week.

Foreign rails have been quiet, and at the time of going to press Canadian Pacifics have fallen sharply to \$66½ mainly owing to the set-back on Wall Street earlier this week. Canadian Pacific preference stock was 73½ and the 4 per cent. debentures 89½. The preference now yields 5½ per cent., which seems attractive, even allowing for the fact that this stock is non-cumulative as to dividend. The common share offers a yield of less than 3½ per cent.; but the market is hoping that the dividend may be raised from \$1½ to \$2 a share. It is, however, not mainly on higher dividend hopes that the price has risen so substantially in recent months, but on increasing prosperity in Canada, which will be further stimulated by the important oil developments.

Leopoldina stocks have been steady but inactive, although current prices are generally somewhat below their expected

pay-outs. It seems that no particular effort is being made by Brazil to release the compensation money, and that there may therefore be further delay. Stockholders may not receive their money until early next year. Nevertheless, those who have seen matters through so far would, it seems, be wise to hold on, awaiting the pay-out. Leopoldina ordinary stock has been changing hands this week around 10½, the preference stock was 26½, the 4 per cent. debentures 94, and the 6½ per cent. debentures 141½. Leopoldina Terminal 5 per cent. debentures were 96.

United of Havana 1906 debentures have been steadier at 19. Mexican Central "A" bonds were wanted and strengthened to 82½.

Taltal shares at 22s. 9d. lost part of their recent advance. Antofagasta ordinary and preference have been steady at 18½ and 75½ respectively. Bolivar "C" debentures were 48, Brazil Rail bonds 5½, La Guaira ordinary stock 9s, and San Paulo 10s. units 15s. 9d. Manila "A" debentures were 81 and the preference shares 9s. 3d.

Much interest attaches to the pending start of dealings in the securities of the White Pass Yukon Corporation. The common shares are being issued to the old White Pass Yukon Railway in part satisfaction for the purchase of the business. The debentures have been offered for subscription at £33 6s. 8d. per \$100 stock. They are the 4½ per cent. first debenture stock (1961-76) and 5 per cent. convertible debentures (1961-76) and are the first offer of Canadian dollar securities made on the London market since before the war.

Engineering shares eased after recent gains. Guest Keen were 58s. 9d., T. W. Ward 78s. 9d., John Brown 50s. 9d. and Vickers 50s. 7½d. Hurst Nelson strengthened to 63s., Birmingham Carriage were 39s. 3d. and North British Locomotive 19s. 6d. Vulcan Foundry moved up to 27s. 6d. Beyer Peacock were 33s. 4½d. Gloucester Wagon 15s. 10½d., Wagon Repairs 13s. 7½d. and Charles Roberts 28s. 3d.

Road transport shares kept firm, sentiment being helped by the prospect of the return of road haulage to private enterprise. Southdown were 93s. 9d., West Riding 46s., and Lancashire Transport 57s. 6d., but B.E.T. deferred stock eased at £480.

Traffic Table of Overseas and Foreign Railways

Railway	Miles open	Week ended	Traffics for week		No. of week	Aggregate traffics to date				
			Total this year	Inc. or dec. compared with 1949/50		Total	Increase or decrease			
						1950/51				
Canada South & Cen. America	Antofagasta ...	811	19.10.51	£ 149,010	+	£ 64,170	42	£ 5,040,480	+	£ 2,291,016
	Costa Rica ...	281	Sep., 1951	cl. 134,577	+	c208,010	13	c3,703,247	+	c357,374
	Dorada ...	70	Aug., 1951	36,976	—	5,426	35	288,447	—	24,505
	Inter. Ctl. Amer. ...	794	Aug., 1951	\$1,050,631	—	\$52,196	35	\$9,022,027	—	\$204,818
	Paraguay Cent. ...	274	19.10.51	\$322,988	+	\$109,548	16	\$5,275,523	+	\$2,235,120
	Peru Corp. ...	1,050	Sep., 1951	\$793,000	+	\$91,000	13	\$24,517,000	+	\$1,070,000
	" (Bolivian Section)	66	Sep., 1951	Bs. 14,404,000	+	Bs. 1,620,000	13	Bs. 41,395,000	+	Bs. 10,886,000
	Salvador ...	100	July, 1951	c125,000	+	c20,000	4	c125,000	+	c20,000
	Taltal ...	147	Sep., 1951	\$2,449,000	+	\$738,700	13	\$6,304,000	+	\$1,825,300
	Canadian National†	23,473	Sep., 1951	17,646,000	+	279,000	39	153,415,000	+	21,228,000
Canadian Pacific†	17,037	Aug., 1951	12,087,000	+	3,514,000	35	93,011,000	+	14,227,000	
Various	Barsi Light* ...	167	Aug., 1951	22,500	—	1,785	21	191,250	+	31,920
	Egyptian Delta ...	607	10.4.51	17,513	—	267	4	17,513	—	267
	Gold Coast ...	536	Aug., 1951	220,509	+	16,972	21	1,280,126	+	109,832
	Mid. of W. Australia	277	July, 1951	46,474	+	2,594	4	46,474	+	2,594
	South Africa ...	13,398	29.9.51	1,987,123	+	222,612	26	49,215,087	+	6,213,499
	Victoria ...	4,744	July, 1951	1,732,725	+	23,478	4	—	—	—

* Receipts are calculated at 1s. 6d. to the rupee

† Calculated at \$3 to £1